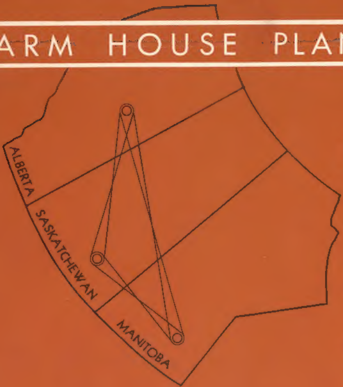
FARM HOUSE PLANNING



FARMSTEAD PLANNING

FARM HOUSE DESIGN

20 HOUSE PLANS

CONSTRUCTION DETAILS

PREPARED UNDER THE AUSPICES OF THE PRAIRIE RURAL HOUSING COMMITTEE SPONSORED BY THE GOVERNMENTS OF THE PROVINCES OF MANITOBA, SASKATCHEWAN AND ALBERTA AND BY CENTRAL MORTGAGE AND HOUSING CORPORATION

THE PLANNING RESEARCH CENTRE, SCHOOL OF ARCHITECTURE, THE UNIVERSITY OF MANITOBA

FARM HOUSE PLANNING

CONTENTS

PREPARED UNDER THE AUSPICES OF THE PRAIRIE RURAL HOUSING COMMITTEE SPONSORED BY THE GOVERNMENTS OF THE PROVINCES OF MANITOBA, SASKATCHEWAN AND ALBERTA AND BY CENTRAL MORTGAGE AND HOUSING CORPORATION

INTRODUCTION

This booklet on farm house planning has been compiled in an effort to assist the home builder to plan effectively for family needs. To do this properly, it is essential to understand and to appreciate good planning, to apply its principles, and to reach satisfactory solutions to problems of planning and building. The usual catalogues of plans indicate neither the basic principles of planning nor the necessary information which can be adapted to individual cases. They do not assist the builder in his efforts to alter plans to suit his particular requirements, nor do they assist him in his efforts to appreciate good construction methods or materials. The main purpose of this booklet is to satisfy, in layman's language, the need of information by people who are financing home building projects in order that they may understand good planning and building techniques.

An interim booklet entitled Farm Houses, containing ten farm house plans was published (in 1948) by the Prairie Rural Housing Committee to satisfy the immediate demand for farm planning information. This booklet was prepared without benefit of rural housing research, the problem of design being approached in the same way as the urban house problem through the straightforward application of the fundamental principles of planning.

To substantiate the many planning and building principles set forth in the current booklet, a survey of rural housing was undertaken. This survey consisted of personal interviews with farm people throughout the three prairie provinces. The areas surveyed possessed all topographical characteristics found in the prairie regions, represented all types of farming lands, and gave the people making the survey an opportunity to study the various farming methods peculiar to different districts and diverse racial groups. We hope that out of such an extensive survey, a firm and logical approach to farm house planning has been reached and that the principles set forth herein are both reliable and practical.

THE PLANNING RESEARCH CENTRE
SCHOOL OF ARCHITECTURE
THE UNIVERSITY OF MANITOBA

FOR FURTHER INFORMATION

If, in this booklet, you find a house suited to your needs, you can procure working drawings for it by writing one of the agencies listed below. The working drawings will include complete plans, elevations, sections and details necessary for construction of the house, as well as a list of the building materials needed. A nominal charge of $2.50 a set to cover the cost of blueprinting will be made. In ordering, be sure to specify the plan number. No working drawings are available for the three houses illustrated on pages 60-61.

If you live in Alberta, order from
The Department of Agriculture, Edmonton.

If you live in Saskatchewan, order from
The Department of Agriculture, Regina.

If you live in Manitoba, order from
The Department of Agriculture, Winnipeg.

Plans may also be ordered from any office of
Central Mortgage and Housing Corporation.

Other booklets in this series which can be obtained by writing to the above addresses include:

"Heating the Farm Home"

"Treatment of Farm Water Supplies"

"Farm House Remodeling"

To be published shortly:

"Farm Kitchens and Utility Rooms"

"Fire Protection for the Farm Home"

PLANNING THE HOUSE AND FARMSTEAD

CONSIDER THE FARM AS A WHOLE FIRST

When considering the farm as a whole, it must be remembered that two distinct spheres of activity exist. One is concerned with farm operations, the other with the living habits of the farm family. To ensure efficient functioning of a farm, it is essential that these two spheres of activity be properly integrated.

THE FARM A PLACE FOR LIVING

In considering the "living" sphere of the farm, the relationship of the house to the remainder of the farmstead, to the farm driveway, to the prevailing winds and to the most desirable views, is of prime importance. The house yard should be separated to some extent from the farmyard and should include a clothes drying area, a play area for very small children, and possibly a small garden plot.

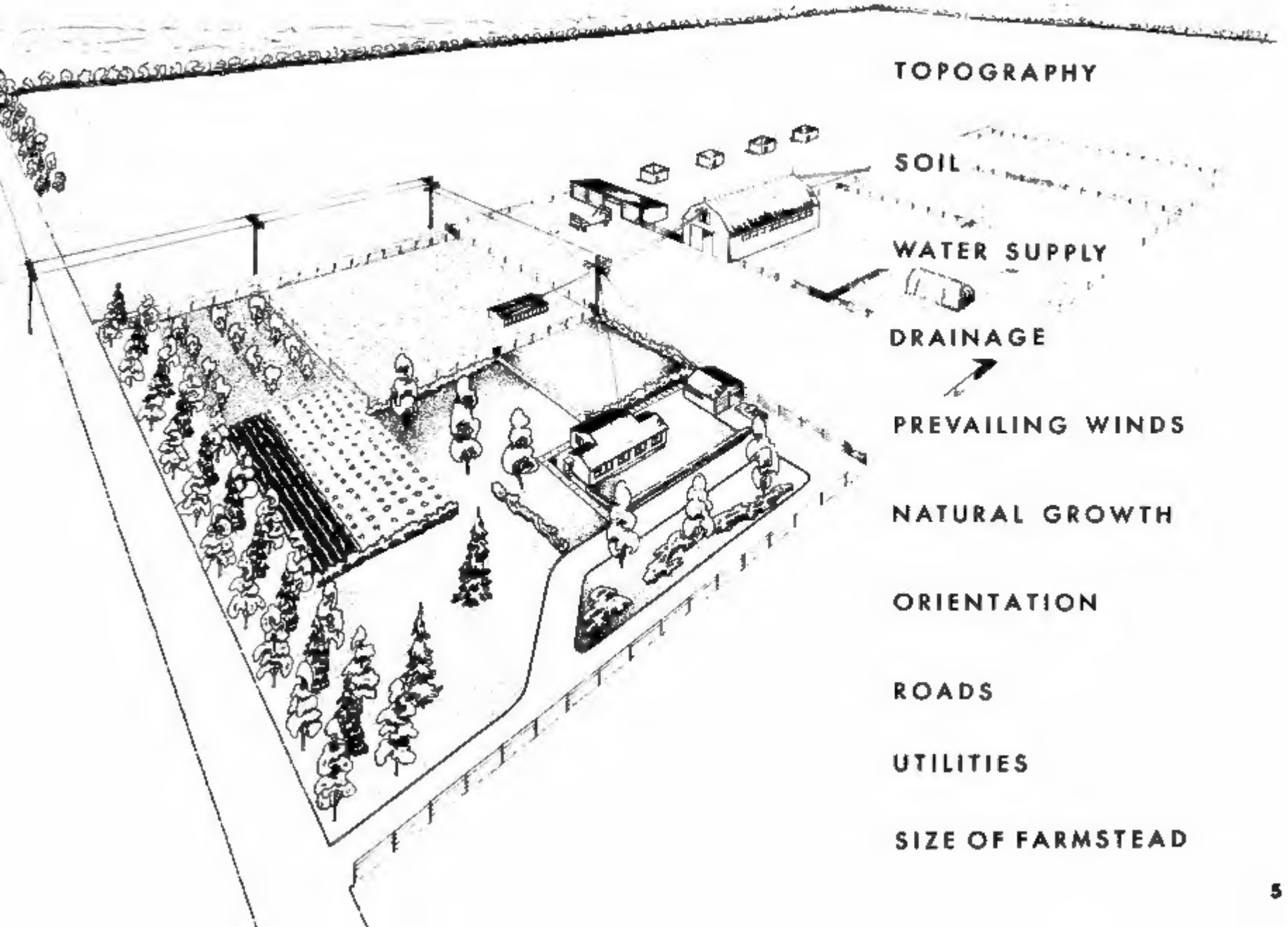
The house location is a governing factor in the planning of the remainder of the farmstead. The farmstead should be of sufficient size to allow proper layout of facilities and possible future expansion of the "living" area.

THE FARM A COMMERCIAL ENTERPRISE

The other group of factors which, in even larger measure, determines the farmstead layout may be classified as the physical or natural factors embodied in the land itself, its characteristics of surface, soil and climate, with their effect upon the types of farming. These factors govern the layout of fields and barns and must be considered when planning for drainage, water supply and wind protection.

For efficiency in farming operations, the relationship of farm buildings to the main highway, to the house and to each other is an important factor requiring careful study.

THE FARMSTEAD AND ITS CHARACTERISTICS



TOPOGRAPHY

SOIL

WATER SUPPLY

DRAINAGE

PREVAILING WINDS

NATURAL GROWTH

ORIENTATION

ROADS

UTILITIES

SIZE OF FARMSTEAD

THE CHARACTERISTICS

Topography: Minor surface variations, such as hills, valleys and water courses, are of great importance as influences which determine that portion of the land which can be sown to crops, the percentage of pasture, the characteristics of the farm operation and the natural features of the particular landscape. Each of these variations and practices has a decided influence on the type of farmstead best fitted to meet these local needs and to take advantage of the natural landscape.

Soil: Equally as important as topography, is the character of the soil. It has a determining influence on the regional types of farming. Its effect on the choice of crops helps to determine the farmstead layout and the equipment which will best serve the particular type of farming.

Water Supply: The water supply is a major factor to be considered when locating the farm site. The water source should be adequate whether it be a well, a stream, a cistern in which rain water is stored or a dugout used to collect run-off from rain and snow. A water supply system to the house and adequate plumbing facilities are two essentials for every farm home.

Drainage: The farmstead site should be chosen where water does not accumulate. The land should slope sufficiently in one or more directions to carry off any surface water from around the farm buildings. To ensure a safe water supply, the barns and farm buildings should be situated below the level of the top of the well or other water source.

Prevailing Winds: Two phases of wind influence farmstead planning—the cold winter winds and the prevailing summer breezes. Since the cold winter winds usually come from the north and west, the heaviest shelterbelts are required along the north and west sides of the farmstead. The prevailing summer breezes are principally from the southeast. This will influence the locations of the barnyard and hog pens with respect to the house. So far as possible these facilities should be located so that the prevailing summer breezes will carry unpleasant odors away from the dwelling.

Natural Growth: Any natural growth on the farmstead should be considered as possible natural shelter when locating the farm buildings. If very few trees exist on the site, then windbreaks should be planted at strategic points to protect the farm house and to minimize the effect of drifting snow.

Orientation: The orientation of the building groups should be such as to take advantage of prevailing summer breezes and winter winds, to allow easy access to main highway and fields, and to ensure some sun control for buildings which are best kept cool in summer and warm in winter. This last applies especially to the farm house which should, if possible, be placed with living room towards the south, kitchen on the north and bedrooms on the east. The coolest exposure will be north, and the warmest south. The west exposure is usually cold in winter and hot in summer; bedrooms on the west side of a house usually become hot during summer evenings, so this arrangement should be avoided if possible. The utility room and stairs should be relegated to either the north or west exposures when it is feasible to do so.

Roads: The main entrance driveway should be as short and direct as possible. This driveway will accommodate the heavy farm traffic and is best located about 50'–0" or more from the house. Passenger traffic, however, may approach the house by a branch driveway extending to the garage and forming a "turn around." It is important that the house be located near the highway in order to reduce the length of the farm road and thus cut farm road maintenance costs.

Occasionally it is considered that two separate approach roads to the farmstead provide the best solution to the driveway problem, one road leading to the house and gardens, the other to the barnyard or stock area. This requires more road maintenance but enables proper landscaping of the outdoor living area, and lessens the dust nuisance and untidiness around the house.

Utilities: Public utilities such as telephone lines and power lines should be considered when planning the farmstead. The closer the site to any of these lines, the less will be the cost of installing poles and expensive wiring. Rural mail routes should be considered also during this stage of planning.

Size of Farmstead: The amount of land needed for the farmstead is dependent on the type of farming to be undertaken. Mixed or stock farming requires barns for horses and cattle, poultry houses, granaries, piggeries and many other buildings, while grain farming requires buildings mainly for the storage of machinery and grain. The farmstead should be compact but the buildings should not be so close together as to create a fire hazard. The vegetable gardens and poultry yard should be near the house for the housewife's convenience, while the pig enclosure and barns should be far enough away to prevent odors entering the house.

NOTES ON PLANNING

The overall planning of the farmstead does not imply merely the planned relationship of barns, yards, gardens, granaries, etc., but also entails the design of each seperate building unit. Careful and intelligent planning of the farm buildings and the farmstead is good business in any circumstances, but applies especially where finances are limited.

The general layout for the various buildings and surrounding field areas is much the same for all types of farming although, as previously mentioned more buildings are required for stock or mixed farming.

The cattle barns and piggeries should be farther away from the dwelling than are the poultry house and storage buildings. The recommended distance is from 150'–0" to 200'–0". Any yards and feedlots in connection with barns and sheds should be on the south or southeast side so that animals will obtain sunshine during the winter and will be protected from prevailing winter winds and the accompanying pile-up of snow. For further protection, windbreaks to the north and west of the yards and feedlots are effective in sheltering cattle and buildings from wind and snow. Strawstacks, which will protect a strip of eight to ten times their heights, are an effective means of securing this windbreak, however they should not be considered as permanent shelters.

Where rotation of pasture land is possible and a minimum amount of haulage is desired in feeding cattle and distributing manure, the placing of feeding units in the pastures or fields is often advisable. If however, frequent attention must be given to a breeding herd, the feeding units should form part of the general building group.

For sanitary reasons, it is not advisable to allow poultry or other fowl to run at large over the farmstead. The henhouse should not be too close to the farm house but should be convenient to it. Two lots to serve as chicken runs should be provided to allow for rotation in the event of disease or parasites among the chickens.

In the general plan of the farmstead a small reserve plot should be provided in close proximity to the building area. This will provide an emergency stock lot, a root crop area, or an area suitable for future buildings.

The well should be placed conveniently near the farm house, stock barns, etc., but at a level high enough to prevent contamination from sewage.

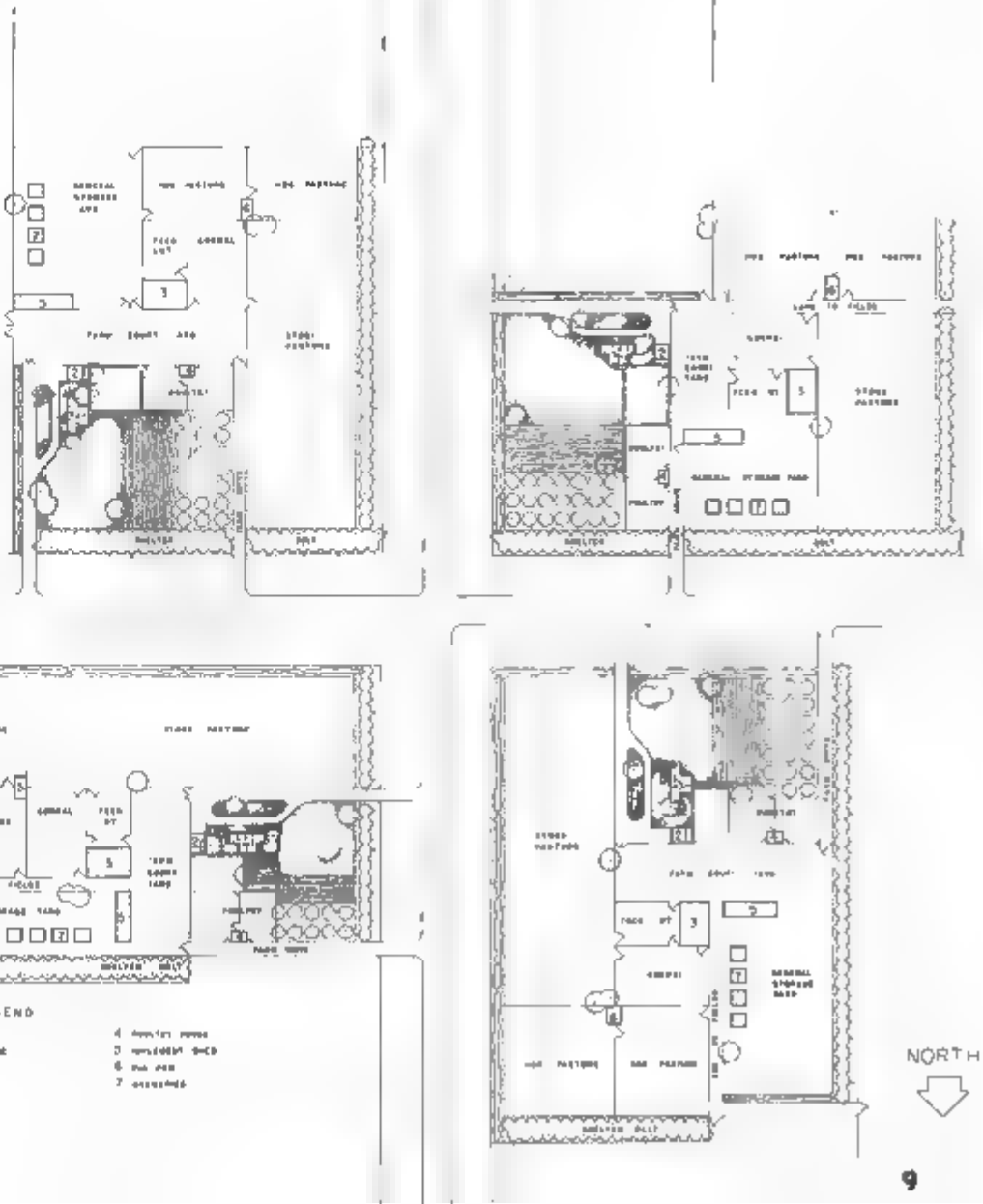
The implement shed and the machine shop are best combined to facilitate repair work.

If needed, platform scales should be strategically placed with regard to the path of incoming or outgoing trucks, to permit quick and easy weighing of cattle.

If the selected site is lacking in natural foliage, then a planned system of tree planting should be undertaken. This systematic planting of trees is an important consideration in farmstead planning. The benefits, obtained from the proper adaptation of shelterbelts, include a reduction in the amount of soil drifting and in the rate of evaporation of soil moisture, as well as the enhancement of the overall farm area. A further benefit from shelterbelts is that of snow accumulation. This accumulation is important after winters of light snowfall for refilling dugouts and for the resultant increase in overall moisture content of the soil.

• • • • WITH SOME SUGGESTED FARM LAYOUTS

If you do not have an adequate tree planting program already in effect on your farm, you should contact your provincial Department of Agriculture for assistance in preparing such a program. Trees for farm planting may be obtained by any qualified farmer from the Dominion Forest Nursery Station, Indian Head, Saskatchewan. A small charge is made for evergreen trees, while broadleaf trees are supplied free except for express charges. This tree distribution policy has been in effect for nearly fifty years and the Forest Nursery Station has thereby established a wide field of experience, the benefits of which are available in the prairie provinces. There may be in your neighborhood farmers who have participated in a tree planting program and from whom you can get valuable first-hand information about farm tree planting. If possible, you should visit one of the Field Shelterbelt Association Areas, particularly those located at Conquest, Saskatchewan, and at Lyleton, Manitoba, where you can see excellent examples of field shelterbelt planting.



CONSIDER THE HOUSE NOW

FIRST CONSIDER YOUR SPACE REQUIREMENTS

We have considered the site problem and now we must determine the number and sizes of rooms the family requires. Starting with the bedrooms, we must decide whether to have individual or shared rooms for the children. Children of opposite sex may room together until four or five years of age and children of the same sex may room together all through childhood. However, authorities on this subject suggest that, if possible, young people should be given their own rooms from babyhood.

The master bedroom should be large enough to serve as a study or sewing room, if provision of another room for these activities is deemed too costly.

The living room is the place for group activities in which all members of the family participate. The room should be large enough and suitable for recreation, reading, study and entertainment of guests. The dining area may also be included if a separate dining room is not desired.

The work area should be planned for food preparation, laundering, cream separating, preserving, etc., either in one room or in two rooms, one of which, the utility room, will provide for services other than food preparation.

These are only a few of the many problems which must be solved before a final plan can be determined. As each family will have different requirements for living a good plan will be the one that is designed specifically for these requirements.

THEN YOUR SPACE RELATIONSHIPS

After determining the number and sizes of rooms required, the next problem is that of integrating these areas into a sound, compact and economical plan. A decision must be made as to the type of house desired — a bungalow, a one and one-half storey, a two-storey or a split level type. Once this is done, the problem of room relationships must be solved. In order to find space for all activities, it may be necessary to use certain rooms for several different purposes. The fact that certain activities are carried on in more than one room suggests possible combinations of rooms.

For instance, some meals will be served in the kitchen regardless of the accommodation provided in a dining room or living room. Therefore, why not combine kitchen and dining rooms, or dining and living rooms to make a two-room arrangement, rather than the more costly three-room scheme?

The living room will be used for entertaining, relaxation, reading, writing and various other activities which require a large floor area. The combination living-dining arrangement will provide this larger floor area without destroying, in any way, the primary functions of the two areas.

The kitchen will prove most successful if planned in relation to a utility room which can be used for laundering, cream separating, preserving and other activities best handled along with the kitchen work, yet apart from it.

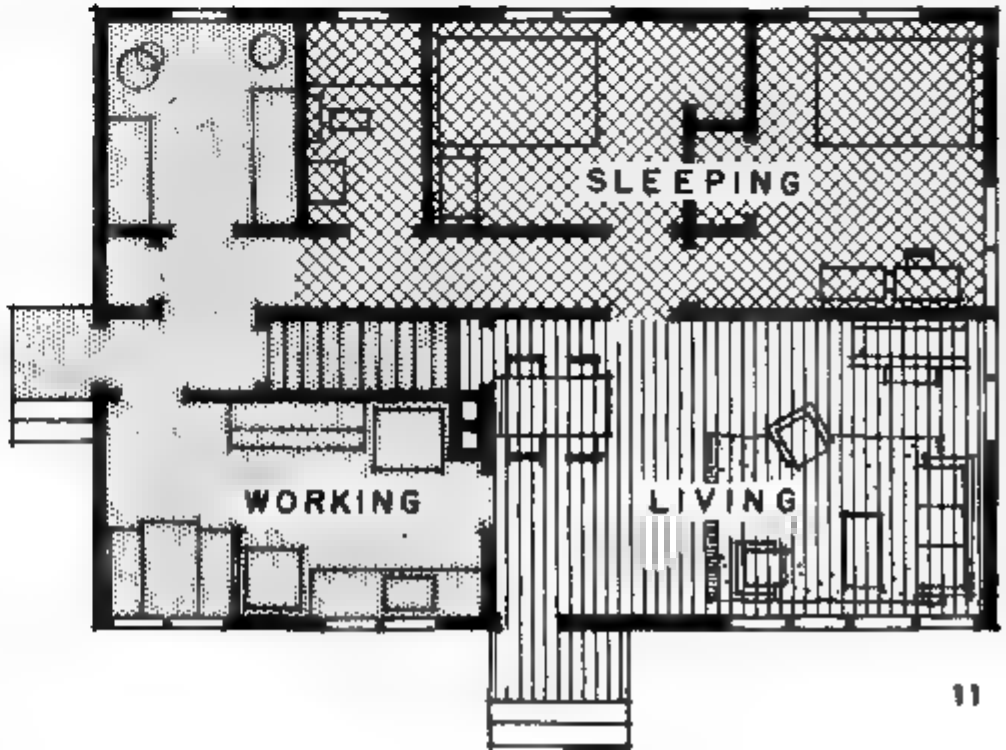
Remember your planning problems are

1. The design of rooms to serve your specific requirements.
2. The design of these rooms to serve their dual or multi purposes.
3. The integration of these rooms, one with the other, and with the overall scheme to form a home suited to the needs of an active farm family — your family.

SPACE REQUIREMENTS

SIZE OF FAMILY

SPACE RELATIONSHIPS



HOW IS YOUR HOUSE LIVED IN?

So far you have chosen the site, made a tentative layout of buildings and planting, arrived at a general idea of the number and sizes of rooms you require. You have given some consideration to the relationship of these rooms and have decided on the type of house you wish to build. Now you must apply these generalities to your living habits and to those of your family. You must decide which activities will be assigned to each room. Your family's individual interests and customs should determine the plan of your house. If you do a great deal of entertaining, a large living room will be a must.

The bedrooms should be in a quiet area, with privacy the main requirement. Convenient passage between bedrooms and bath is essential. Access to bedrooms from either front or rear entrance should, if possible, by-pass the living room.

The housewife's cooking habits should determine the kitchen layout. This is a major factor in any house plan, as the kitchen is the unit where efficiency is the keynote. As the housewife spends much of her time in the kitchen, the room should be bright and cheerful. Space should be provided in the work area for laundering, preserving, cream separating, and for storage of the various utensils for each activity.

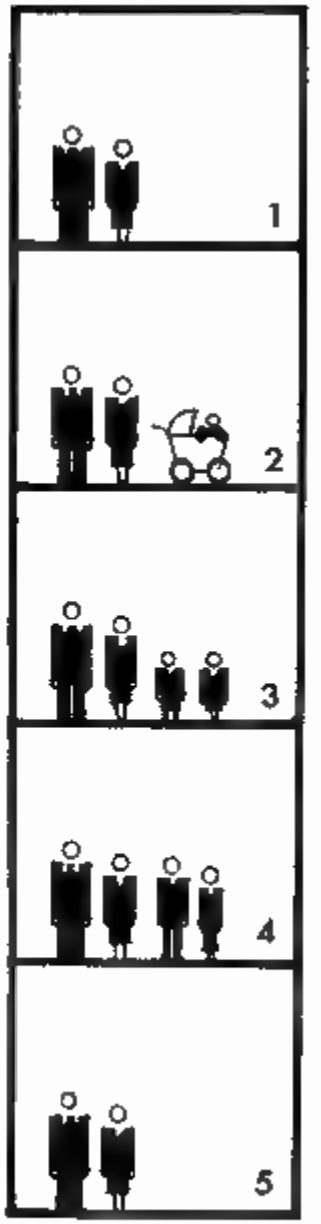
The children's living patterns, also, should govern much of your planning. They require play space in an area where they do not interfere with adult activities, yet where they may be under supervision. The older high school group requires study areas and space for hobbies, entertaining friends, etc.

A young couple planning a home should take into account the possible variety of conditions they are likely to encounter through the years. In general, the pattern of family life may be divided into five phases, namely

1. Newly-married couple
2. Family with children of pre-school age
3. Family with children of school age
4. Family with children of high school or college age
5. Elderly couple

It is preferable to begin with a minimum house planned for later expansion. The one and one-half storey house is the type which lends itself most easily and economically to expansion. Here the structure is completed during the initial stage of building. The upper storey is usually left unfinished until such time as the growing family requires more space, then, with the simple installation of room finishes, the rooms can be made habitable.

When adult sons and daughter leave home parents frequently find themselves with a house too large for their needs or budget. This condition may be provided for if the house is planned so that areas can be closed off without affecting the basic room relationships.



CHANGING CONDITIONS OF THE FAMILY

CONSIDER ACTIVITY CENTRES

- KITCHENS
- UTILITY ROOMS
- DINING ROOMS
- LIVING ROOMS
- PORCHES
- BED ROOMS
- STUDY AREAS
- BATHROOMS
- RECREATION AREAS
- STORAGE AREAS

KITCHEN-UTILITY

DINING

COOKING

FOOD STORAGE

FOOD PREPARATION

CLOTHES STORAGE

DISH STORAGE

DISH WASHING

WASH-UP

SEPARATING

CANDLING EGGS

DRESSING POULTRY

CLEANING UTENSILS

LAUNDERING

PRESERVING

THE KITCHEN

The kitchen is the hub of farm-house activity and its functions are not restricted to cooking and dishwashing, but also include dining, sewing, ironing, etc. When planning the kitchen one should anticipate the number of these activities and provide for them

Kitchen equipment is usually arranged according to the work processes in the kitchen These processes, which constitute the necessary steps involved in the preparation of a meal, are designated to well defined 'work centres' range, sink, mix, where supplies for each process are stored at point of first use

A minimum number of doors is essential in good kitchen design Two doors are usually necessary — one to the living or dining room, the other to the rear hall or outside yard Windows should be located at the sink centre, if possible, at a height approximately 3' 10" above the floor This will allow space for a splash board at back of sink under the sill Windows anywhere else along the preparation line take up valuable wall cupboard space, therefore they, as well as doors, should be located after equipment and cupboards have been placed.

THE WORK CENTRES

SINK

Since water is essential to cleaning, dishwashing, food preparation and cooking, the sink is the axis around which all kitchen work revolves. This centre should contain space for foods which need washing or the addition of water before cooking, fruits and vegetables not requiring refrigeration; saucepans, coffee pot, double boiler, kettles and strainers, brushes and knives, dishwashing and cleaning supplies, a garbage disposal unit

Work surfaces should be provided on either side of the sink A space about 36" by 24" is usually adequate for stacking dirty dishes to the right of the sink A surface about 32" by 24" to the left of the sink will furnish room to place clean dishes for drying

MIX

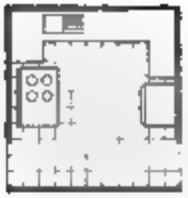
This centre is for the preparation of cakes, pastries, salads, and a variety of foods that do not require cooking It should contain storage space for mixing bowls and spoons, measuring cups, sifter, beater, grinder and rolling pin; baking pans and casseroles; foods used in mixing (sugar, flour, shortening, spices). The refrigerator is located at this centre and should be convenient to the sink and range centres.

A lower work counter is desirable at this centre and may be provided by the installation of a sturdy pull-out board in a base cabinet. Metal-lined bins for flour and sugar are desirable when these staples are bought in large quantities

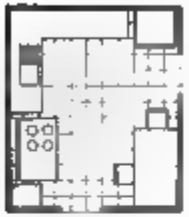
RANGE

This centre is for the cooking, baking, broiling and serving of hot foods It should be located near the mix centre, adjacent to the sink centre, and convenient to the dining area It should have storage space for skillets and saucepans which are used at the range; stirring spoons, testing implements, ladle, turner and potato masher, canned vegetables and foods used first with boiling water (tea, coffee, raw cereals, macaroni). Serving dishes for hot foods may also be stored here

Counter space should be provided on either or both sides of the range for placing food when it is removed from the oven or surface burners, and for serving this food



U - SHAPED



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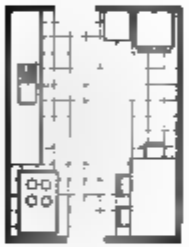
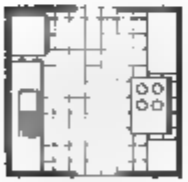
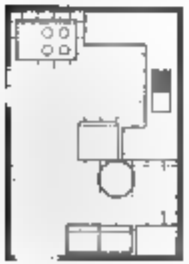


BROKEN - L



CORRIDOR TYPE



DOUBLE - U

PLAN TYPES

The work centres should be arranged to provide greatest convenience in operation and efficiency In plan, the centres normally progress from right to left: mix, sink, range This sequence, usually determines the kitchen layout. Most kitchen areas may be adapted to one of the following basic types:

1 U-shaped kitchen is one of the more satisfactory arrangements from the standpoint of food preparation The sink is usually placed at the bottom of the 'U', with the mix and range centres forming the two wings

2 L-shaped kitchen has a continuous work surface along two sides of the room. The grouping of the centres should be as compact as possible The remaining two walls may be used for dining space and door openings.

3 Broken-L kitchen has the centres located on two adjacent walls and separated by a doorway In an arrangement such as this, the isolated centre necessarily becomes a self-sufficient unit, with enough cupboard space and work surface for all utensils and activities at the centre

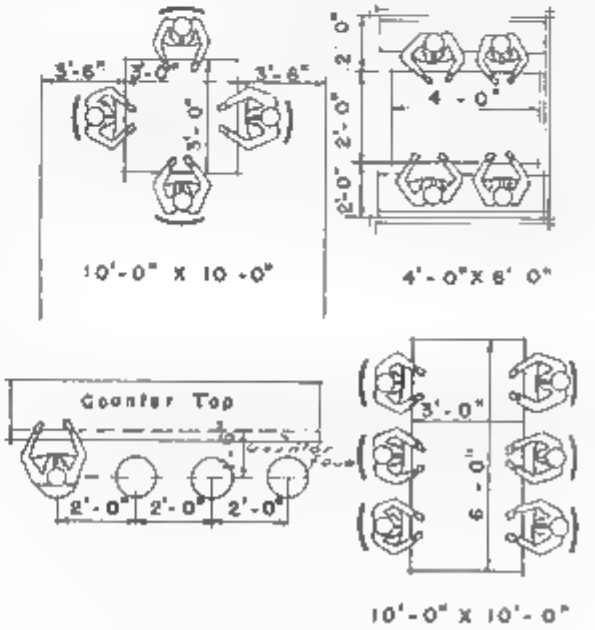
4 Corridor-type kitchen is best for a narrow room with a door at each end. The sink centre should be located on the outside wall with the range centre on the opposite wall The mix centre may be located on either wall, depending on the space available

5 Double-U kitchen is a combination kitchen-utility arrangement in which one 'U' is used for food preparation, the other for the extra equipment necessary for laundering, cream separating, preserving, etc

OTHER ACTIVITIES

Other activities which may well take place in the kitchen are dining, accounting, writing, laundering, mending, preserving, and to some extent, visiting A proper distribution of activities will make for a smoother functioning of the plan After deciding just which activities will be assigned to the kitchen, the special equipment required should be arranged so that normal cooking activities are not hampered

Most week-day meals are eaten in the kitchen, and breakfast is usually a kitchen meal This means that dining space, by provision of a nook, folding table or a counter and stool arrangement, may be a necessity The folding table seems best, as the table may be used conveniently for other purposes or may be folded, to take up less space when not in use The nook and counter arrangements lack flexibility and occasionally may be most inconvenient



REQUIRED SPACE FOR DINING

THE UTILITY ROOM

The farm kitchen demands more storage space than does the city kitchen and must provide for a wider variety of activities. The ideal condition in the farm house is to have a work room or utility room adjoining the kitchen. The two rooms should be planned to function as a single unit. The activities carried on in each are closely related and the purpose of the utility room is to support the kitchen in providing work and storage space for the many and varied farm undertakings.

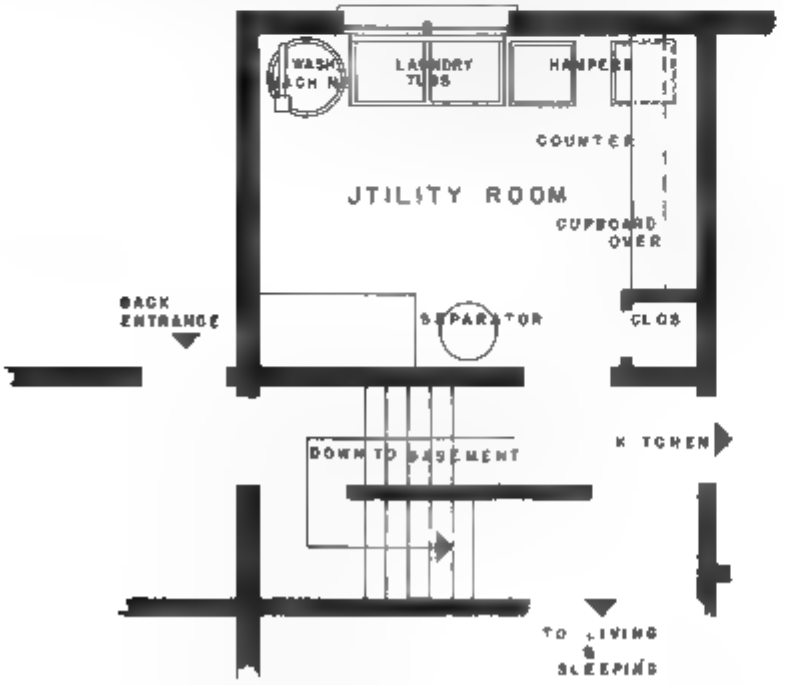
The utility room will accommodate separating, preserving, laundering, and other activities not concerned with the actual preparation and cooking of meals. It also may provide for sewing, office work, hobbies, etc., according to family requirement. Workers coming in from the fields or barns usually remove overalls and wash before meals. There should be space in the utility room for clothes storage and a wash bowl and, if feasible, a shower and toilet. The utility room might even provide for cleaning dairy utensils, dressing poultry, and candling eggs. These jobs are done on a small scale.

The plan below illustrates a suggested kitchen-utility relationship. The utility room is not a back entrance area but a separate work space, close enough to the kitchen to be used in conjunction with it, but not necessarily a part of it.

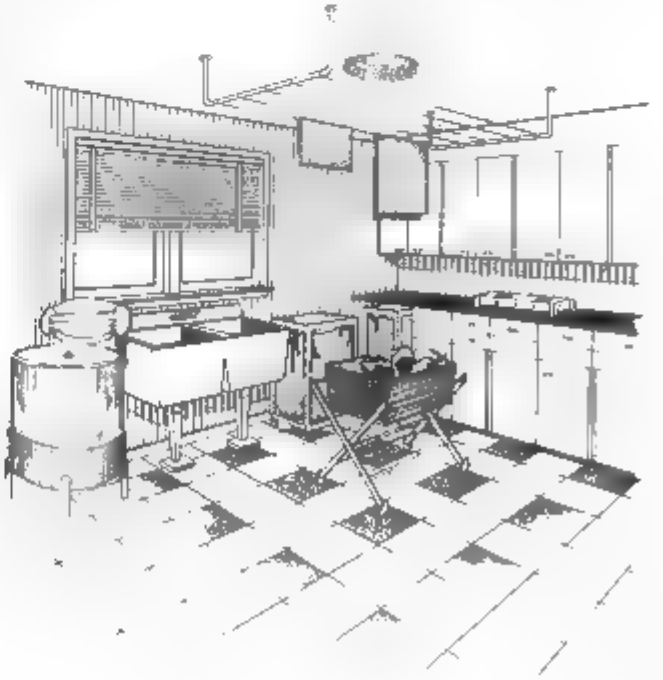
As the laundry requires the heaviest and most permanent equipment it should form the basis of the utility room layout. An electric pump, water heater, stationary tubs and drains are essential to a properly functioning laundry arrangement. A floor drain, a drain pump on the washing machine or a siphon hose are all labor-saving devices. The counter to the right of the tubs may be used for sorting and sprinkling clothes.

Milk may be separated at the counter opposite the washing machine and laundry tubs. The cabinet will provide space for bottles and cleaning equipment. This same counter space may be used for preserving, with overhead wall cabinets providing sealer and utensil storage. A hot plate may be installed in the utility room for greater convenience when preserving.

The men's wash facilities and clothes storage are both provided in the utility room layout. A wash bowl, shaving equipment and towels are stored in the cabinet near the laundry tubs. The closet will easily accommodate outer garments, rubbers, etc.



PLAN



PERSPECTIVE

THE LIVING ROOM • • • •

This room is the centre of family social life and it should contribute to the enjoyment of family living. It is the entertainment centre of the home. If possible, this room should include several well defined areas. For example there may be an area for writing, one for relaxing or reading, one for musical activities, and one for children's play. It should be possible to combine these areas in order that the entertainment of larger groups will present no problem. One end of the living room may serve as a dining area if a separate dining room is not required. Between meals this dining area might be used as the writing or study area.

If possible, the outside entrance to the living room should be protected by a vestibule which might include a coat storage closet. This vestibule will prevent cold drafts entering the living room. Another convenience in the living room might be a storage closet for games, cards, card tables, etc.

The living room should face south or east and for a desirable, sunny, cheerful atmosphere, large windows should be used. There are types of glass which make these large windows both possible and practical. Protective canopies should be installed over any large expanse of glass which faces south. In this case, canopies are a necessity, not applied decoration. (See The Window — A Special Problem — page 76.)

Living rooms in average sized houses are 12'–0" to 14'–0" in width. The length of the room should be from one and one-half to one and three-quarter times the width. Desirable minimum lengths range from 18'–0" to 20'–0". The exact size will depend on the amount and type of furniture to be used, the recreation and entertaining to be carried on, and the diversity of activities for which provision must be made. The living room should be made somewhat larger if it is to be used also as a dining room.

ENTERTAINING

ACCOUNTING

RELAXING

CHILD'S PLAY

• • • AND RELATED AREAS

n recent years because of the excessive costs of materia and abor p anning features which are not considered absolutely necessary by most home builders. have been el m nated The porch has been l sted as one of the unessentials despite the act that it may be very usefu A propery ocated screened porch s an exce ent refuge from the heat o the house during the summer evenings and it provides protection from insects. In many sections of the country, screened porches are mpractica because of dust However porches n these areas may be glazed and used qu te successfu ly the year round

Summer porches are often bu it off the living room to serve as sitt ng areas during the warm summer evenings However many farm women prefer a summer porch adjacent to the kitchen. The porch may be used as a work room, as a d ning area, or a place to rest or sew during the day I large enough a porch wil provide excel ent sleep ng accommodation for at east a few months of the year

The arm house plan should be very flexible as it must accommodate a wide variety of needs Office space is needed for farm records and for bus ness transactions and an office-den combination would probab y prove to be most sat sfactory The o ice area also could be planned as part of the dining room guest room living room or uti ty room The sketch on the eft il ustrates an arrangement which could be fitted into a corner of any of the rooms mentioned The office area should be readily accessib e from either the front entrance or the rear entrance

For the entertainment of arge groups and for the act vit es of the younger set a recreation room is a desirab e feature Due to the excess ve cost of ground floor space the basement s he best p ace for the recreation room The basement cou d also con ta n a hobby or work room for the countless repair jobs which are forever present on the arm nsta a on of a finished basement room w th urnish ngs is feas b e only if he house is constructed in a high, dry area If the land s ow and wet, ground water w ll probably be present and a dry basement wi be poss b e only af er cost y wate proofing

SLEEPING • BATHING • DRESSING

For the family which includes both boys and girls, the house should be planned with at least three bedrooms. Even for a family with just one child, a two-bedroom design is at times insufficient. The two-bedroom arrangement, however, is a practical minimum and, if additional temporary sleeping accommodation can be provided in a glazed porch, sunroom or den, then the arrangement should prove satisfactory.

Bedrooms should be planned to accommodate a bed, one or two chairs and a dresser. The desirable minimum size for a single bedroom is 100 sq. ft., for a double bedroom 120 sq. ft. The single room should accommodate a ¾ bed (4' 4" x 6' 10").

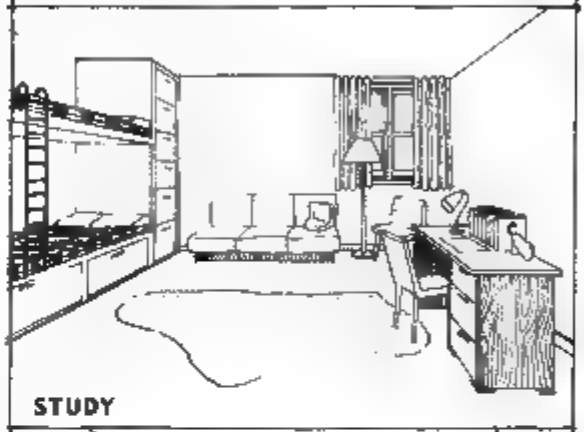
One of the bedrooms should be large enough to serve a dual purpose, sitting room, sewing room or study. The guest room, if there is one, is unquestionably the room for this purpose, as it will be unoccupied much of the time.

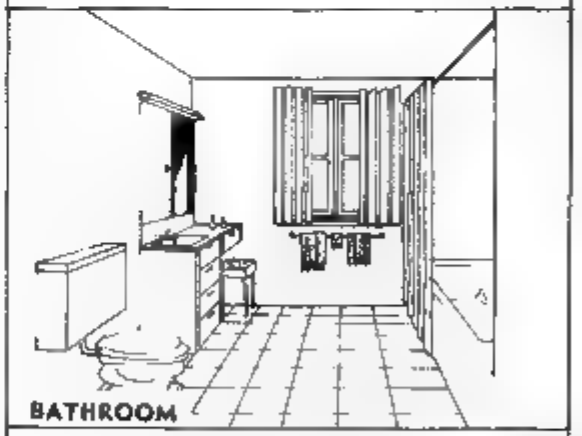
The bathroom should be readily accessible from all bedrooms through a common hall. The minimum dimensions for the bathroom should be 5' 0" by 7' 0", the bathroom must be larger than this if the storage space for towels and linen is to be included or if a dressing table or counter top sink cabinet is to be provided.

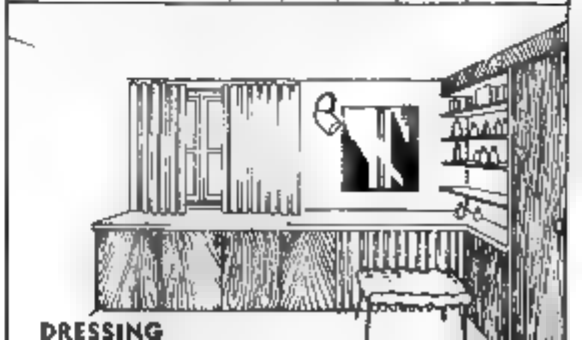
The bathroom should have only one door placed so that it may be opened fully. The bath tub should not be placed under the window if any other arrangement is possible. The room arrangement is relatively standard, the fixtures are either placed along one wall or are arranged so that the bath is along the narrow wall, with the sink and toilet on the opposite wall. The toilet should be within 2'-0" or 2'-6" of the soil stack to provide for a suitable connection.

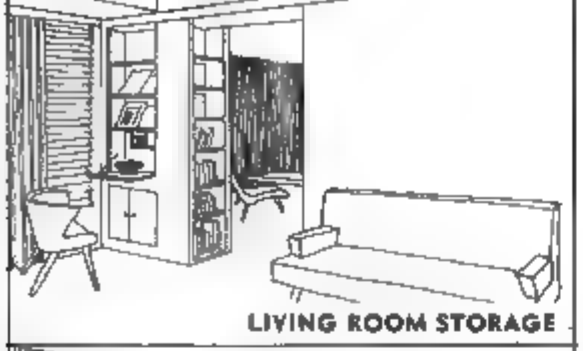
In a two storey house it is sometimes convenient to have the lavatory and toilet room on the main floor, with the bathroom upstairs. This bathroom could be combined with a dressing room, a worthwhile convenience if space is available. Such a room could form a connecting link between two bedrooms. A room containing all necessary closets, dressers, shelves and drawers centralizes dressing requirements, makes for a neater bedroom, and consequently makes the bedroom more usable as a bed sitting room or as a multi use area.


BEDROOM


STUDY

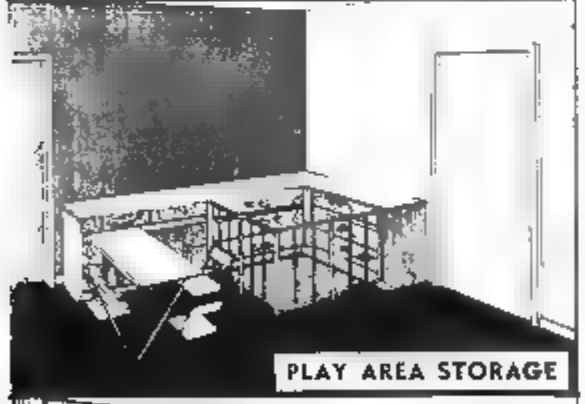

BATHROOM


DRESSING

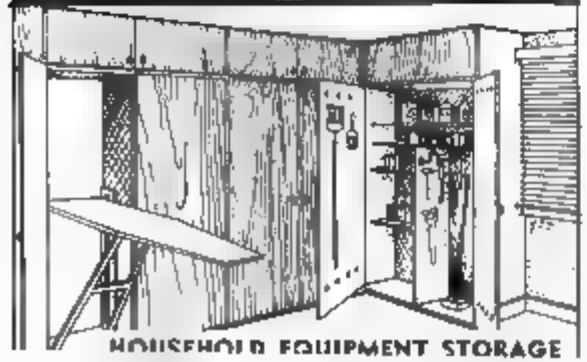


LIVING ROOM STORAGE

BEDROOM STORAGE



PLAY AREA STORAGE



HOUSEHOLD EQUIPMENT STORAGE

STORAGE AREAS

Household living can be greatly simplified by ample provision and proper use of storage facilities. Suitable and adequate storage space should be provided in every room. Storage space should be inconspicuous yet readily accessible and designed to accommodate the articles to be stored. Natural or artificial lighting of the closets should be bright enough to make all stored articles plainly visible.

Clothes Closets. Closets for outdoor clothing should be located near both the front and rear entrances. The rear entrance closet should also be near the washing-up area in the kitchen or utility room. Seasonal clothing should not take up space in the general closets but should be stored in a centrally located closet which will provide a maximum amount of protection from moths, dust and dampness. Rainwear can be stored separately or confined to one end of the general closets. If separate closets are not provided for the children the larger closets can be fitted with rods and hooks at convenient heights for them. A separate closet for each occupant of a bedroom is desirable but should this not be possible a separate rod for each person should be provided. For convenience and economy, a bedroom closet can be a minimum of 2'-0" deep. Openings in the top and bottom of the doors will provide ventilation and by raising the level of the floor dust can be partially excluded.

Living Room Storage. The necessary equipment for reading, entertaining and other recreational activities should be stored in the living room near the area where such equipment is required. The closet fittings, shelves, trays and drawers, should be designed for specific purposes so that articles may be stored according to the frequency of their use and at suitable heights.

Cleaning Closets: Cleaning supplies should be stored in a separate closet located near the kitchen and the rear entrance.

Inside walls of the closet should be smooth and impervious to oil. Plaster or wallboard walls covered with enamel or oil cloth are satisfactory linings. The closet should have adequate ventilation.

Outdoor Storage: Garden tools and children's outdoor play equipment are best stored outdoors but should be readily accessible to the occupants of the house. The garage, work porch or wood shed may provide suitable and accessible space for this type of storage.

Farm Business Storage. There should be space within the house for that part of the farm business requiring paper work. A small closet off the dining or living room could provide ample storage for the letters, bulletins, catalogues and reference books used in connection with this work.

Luggage Storage: Storage space for luggage must be kept dry. Dampness and mildew which are a result of lack of air circulation will damage luggage. If space in the basement is to be used, proper ventilation must be provided, preferably by grilled vents in the doors and walls which will permit air to circulate through the closet.

Household Equipment Storage: Tools, paints and other equipment that are required for general house repairs are best stored close to the work shop area. To reduce fire hazard, paint storage areas require good ventilation.

Play Area Storage: Children's play equipment should be stored within the play area. The storage units should be designed so that the toys and games are stored at suitable heights and within easy reach of the children.

CASE STUDIES

BUNGALOWS
- PLAN No. 1-A
- PLAN No 17
- PLAN No. 9
- PLAN No 11
- PLAN No. 6
- PLAN No. 12
- PLAN No 3
- PLAN No. 5-A

SPLIT-LEVELS
- PLAN No. 15
- PLAN No. 7
- PLAN No. 13

1½ STOREYS
- PLAN No. 5B
- PLAN No B
- PLAN No. 14
- PLAN No. 1-B

2 STOREYS
- PLAN No. 16
- PLAN No. 10
- PLAN No. 4

SPECIAL TYPES
- RAMMED EARTH
- PRE-FABRICATION
- WOODEN ARCH

In the past, many farm houses have either been copied from houses built in towns or have grown from one-room shelters into complicated and inconvenient dwellings through the addition of a room here and a room there

Too often, a farm house or any house for that matter, has been thought of as four walls and a roof built to exclude the elements and to include a series of rooms filled with furniture. More recently it has been recognized that the farm house is more than a mere shelter When in it the many and diversified activities of the farm family take place Frequently some of the activities take place simultaneously, and may overlap in both time and space Thus the problem of planning the farm house resolves itself into providing properly correlated spaces for independent and group performance of such activities

The answer to the farm family's requirements is a commodious house designed to provide shelter, comfort and beauty

As you read through the booklet, ask yourself the following questions to determine if the plans will provide for your family's needs with regard to.

Room use how well does each area provide for the activities that normally take place therein? Would some of the areas also accommodate other activities that may take place less frequently or at some other time of the day? Is there sufficient flexibility in the planning to allow for opening up or closing off certain portions of the house to provide for common or separate activities? Does the plan allow for future expansion to accommodate additions to the family?

Circulation - how directly can one get from the kitchen to the rear entrance, from the kitchen to the dining table, from the rear entrance to the clean-up area, from the bedrooms to the wash room, etc? How easily can one get around through the rooms and hallways or up and down the stairs without getting in the way of other members of the family or colliding with furniture?

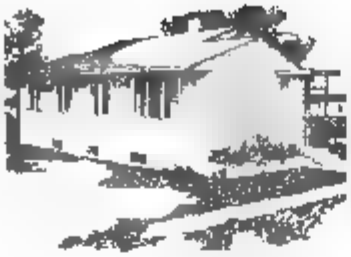
Furniture arrangement how efficiently is it grouped for family living needs? Is it comfortable and conducive to a friendly atmosphere?

Storage areas — are they more than ample? Are they conveniently located? Are they designed especially for the items to be stored, thereby ensuring economy of space and maximum use?

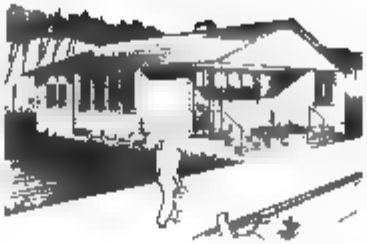
Utilities does the plan ensure economy of plumbing by concentrating the pipes in one area? Has provision been made for wall and floor ducts for a gravity warm air heating system which can be changed to a forced air system when electric power is available? Is the chimney located to ensure a central position for the furnace? Has provision been made for adequate lighting and power outlets to utilize electricity when it becomes available?

After analyzing the plans in this way, you will realize that planning today tries to create as much open space within the house as possible in order to ensure greater freedom of movement, more light, greater sense of spaciousness and a less complicated structure

PLAN No 1-A Page 24



PLAN No 17 Page 26



PLAN No 9 Page 28

PLAN No 11 Page 30

PLAN No 6 Page 32

PLAN No. 12 Page 34

PLAN No 3 Page 36

PLAN No. 5-A Page 38

PLAN No 15 Page 40

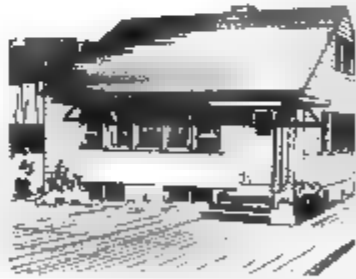
PLAN No. 7 Page 42

PLAN No. 13 Page 44

PLAN No 5-B Page 46

PLAN No 8 Page 48

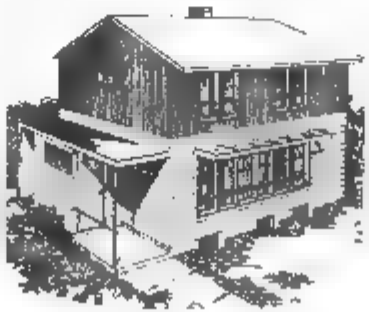
PLAN No 14 Page 50



PLAN No 1-B Page 52

PLAN No. 16 Page 54

PLAN No. 10 Page 56



PLAN No 4 Page 58

WOODEN ARCH Page 60

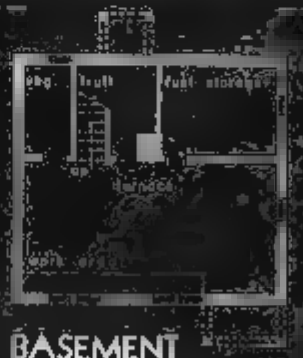
RAMMED EARTH Page 60

PERSPECTIVE FROM SOUTH EAST

No. 1-A

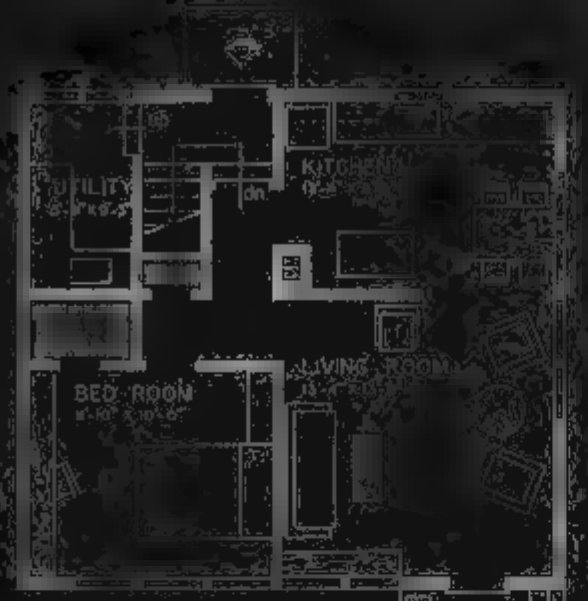
EAST ELEVATION

SOUTH ELEVATION



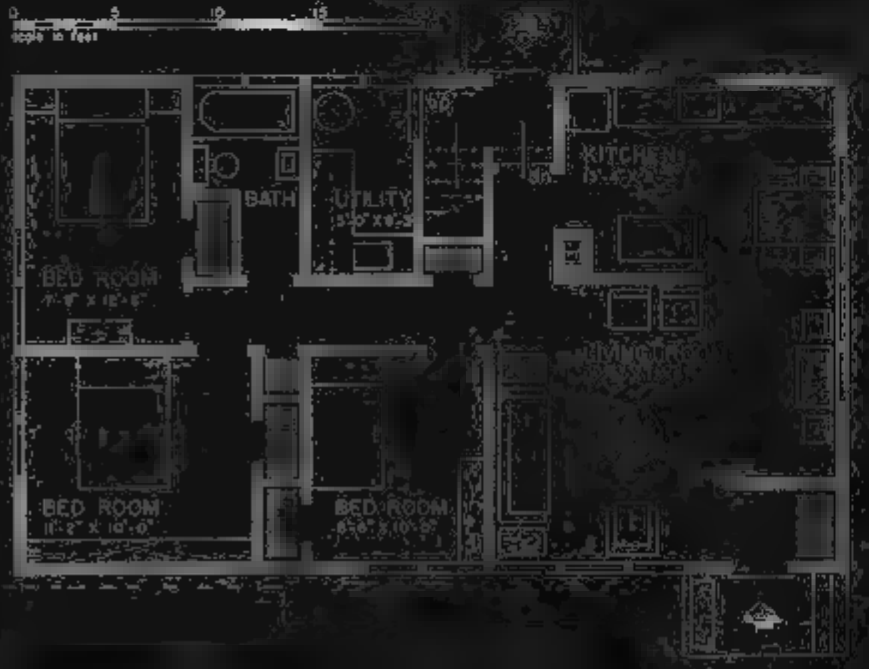
BASEMENT

FLOOR PLAN
WITHOUT BASEMENT



INITIAL MAIN FLOOR PLAN

MAIN FLOOR PLAN



PLAN No. 1-A

INITIAL PLAN

This compact unit has been designed for the young farm family whose living requirements will increase as years go by

Looking at the initial plan, it can be seen that the rear entrance provides access to all parts of the house To the right of the entry and up two steps is the utility room with adequate counter and work space Directly opposite the rear door is the small central hall which leads to the kitchen dining area, the living room and the bedroom

The utility room is quite small, but is well related to other work centers in the house and should prove adequate for cream separating, washing clothes, and other necessary activities

The kitchen-dining area has been planned for efficiency and convenience with the sink and counter along the north wall, the stove on the south near the chimney and the dining table in proximity to both, but nearer the window and in view of the living room The opening between dining area and living room makes for a more spacious feeling in both rooms, and should prove advantageous when larger dining space is required

The bedroom is of standard size and has ample closet space. A long narrow desk has been indicated with the intention of providing space for office work

A full basement has been suggested, having space for furnace fuel vegetable and fruit storage, and work bench If for any reason the basement is not to be constructed, the space now occupied by the stairs would allow for a larger utility room as indicated in plan on opposite page

EXPANDED PLAN

The plan on the left shows the expanded unit An addition having two bedrooms and bath, has been built on the west side to accommodate the added family needs. It is this enlarged house that is illustrated by the perspective view

The central hall in the initial plan has been extended and provides access to the rooms in the new section

The bedrooms are all above minimum size and have adequate storage closets The bathroom has been placed next to the utility room, consolidating the plumbing for the two areas

The west wall of the living room has been moved over to provide a larger living area, thus keeping the room adequate for the requirements of the increased family

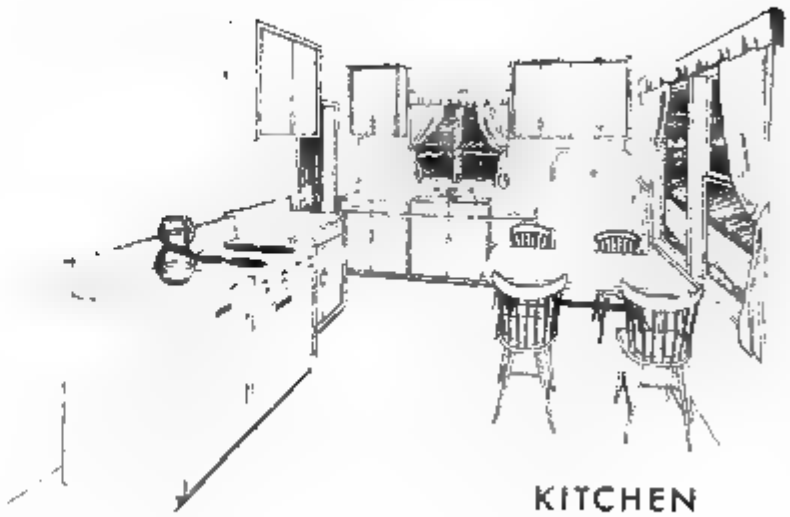
If desired, the basement can be enlarged along with the main floor plan. However, the basement provided in the initial stage should be adequate

Overall dimensions: initial plan — 26' x 24'
main plan 40' x 24

Ground floor area initial plan — 624 sq ft
main plan 960 sq. ft

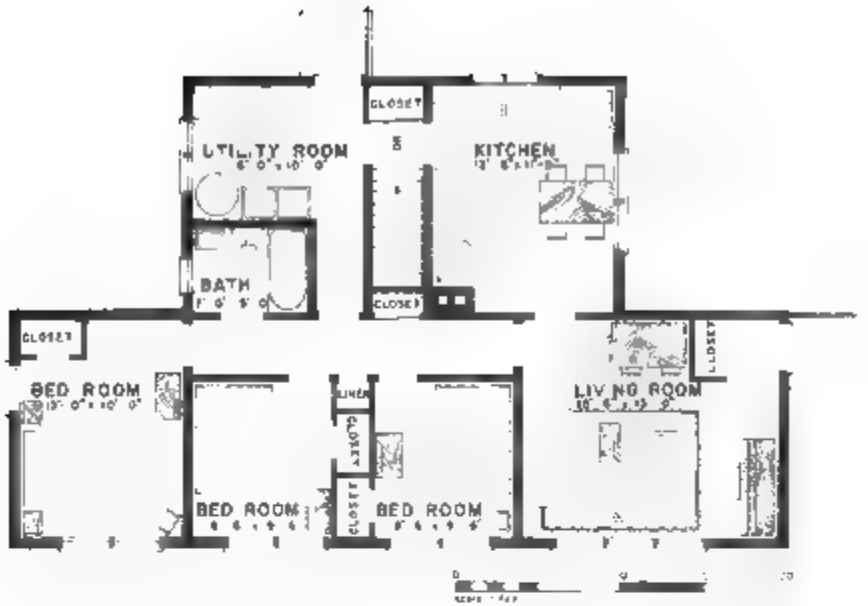
PLAN No. 17

This three bedroom bungalow has some unique planning features The house is divided into two distinct areas the work area including kitchen utility room and bathroom and the living area which includes the living room and bedrooms The living area forms a long wing designed to allow southern exposure for all bedrooms and the living room The work area is on the north side of this wing forming a T shaped plan

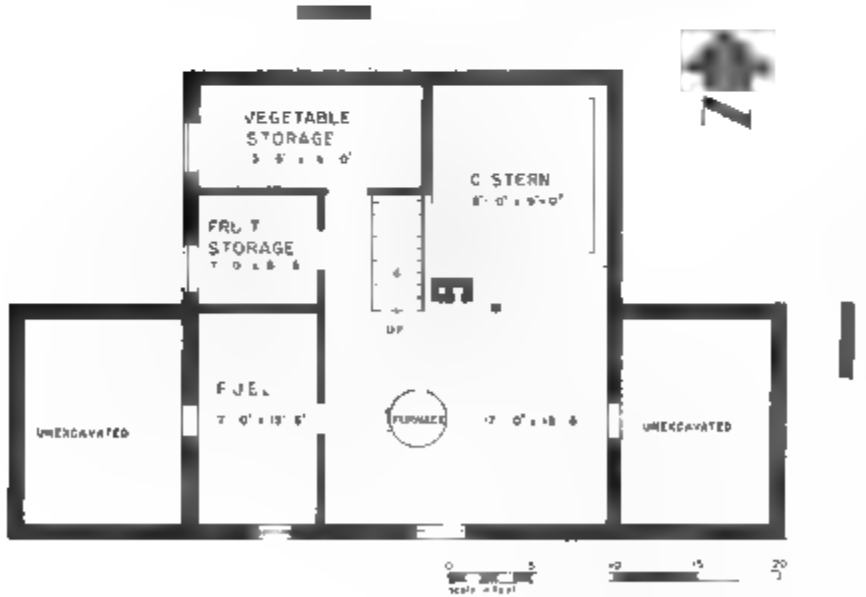


KITCHEN

PERSPECTIVE FROM SOUTH EAST



MAIN FLOOR PLAN



BASEMENT PLAN

In confining the kitchen, utility room and bathroom to one wing of the house, piping has been minimized. This arrangement confines food preparation, laundering, cream separating and other such tasks to the area designated for this specific purpose, leaving the rest of the house to serve exclusively as the living-sleeping area.

It may be desirable to close off the utility room from the rest of the house so that it may be kept at a lower temperature. Because of this, access to the bathroom is from the bedroom hall rather than from the utility room.

The large kitchen provides adequate dining space. Counters and appliances are situated along two walls, forming a "broken L" kitchen arrangement. Two large windows provide pleasant views at both the dining area and the main work counter.

The living room is spacious and has a large window facing south. Dining space is provided in the living room.

The three bedrooms that are all on the south, receive ideal natural light. The rooms are provided with adequate closet space and should prove satisfactory for the average family.

The basement contains storage areas for fuel, fruit and vegetables. A water cistern is located directly below the kitchen area. The furnace room is large enough to house activities such as wood working, metal working and general repair work.

Overall dimensions: 47' x 28'
Ground floor area: 1022 sq. ft.

No. 9

This is a small house which should prove both economical to build and comfortable to live in. It will be easy to maintain because of its minimum but well arranged room areas, and easy to heat because of its size.

One terrace covered by the overhanging roof serves both front and rear doors. Each entrance has been provided with a vestibule. In addition to this protective terrace, and in or near each vestibule ample coat storage has been provided.

The back door leads directly to the basement where the utility room is located, and to the central hall from which any room on the main floor is directly accessible.

The front entrance takes you into the living room which is arranged with a conversation group around the large south bay window. To the right of the entrance a writing desk is located where most of the farm office work could be handled.

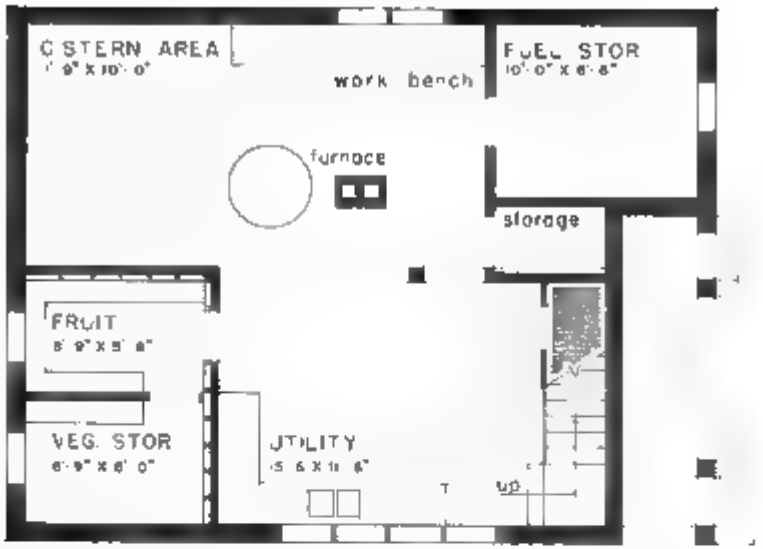
The kitchen appliances and counters have been arranged in an "L" shape presenting the most efficient arrangement for food preparation and cooking. The dining table is placed to take full advantage of the routine established by the kitchen counter arrangement.

The bedrooms are of reasonable size, have cross-ventilation, and are provided with ample closet space. A linen closet is located in the bedroom hall.

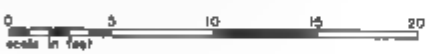
The basement space is fully planned, with

- The utility area in proximity to the stairs.
- The utility counter and sink under the large window area on the south wall.
- The fruit and vegetable storage near the utility counter space.
- The work area on the north wall with bench under the windows.
- The furnace in a central location beside the fuel bin and the water cistern.

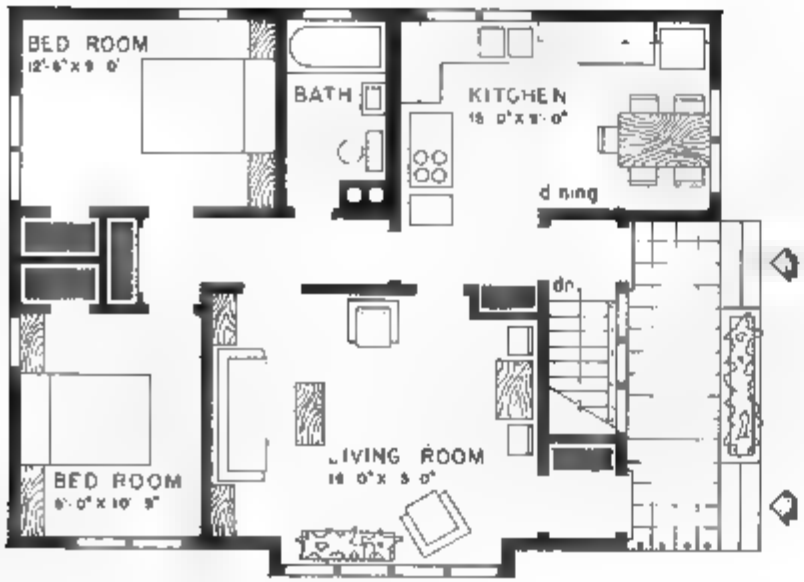
Overall dimensions: 34' x 26'
Ground floor area: 824 sq. ft.



BASEMENT PLAN

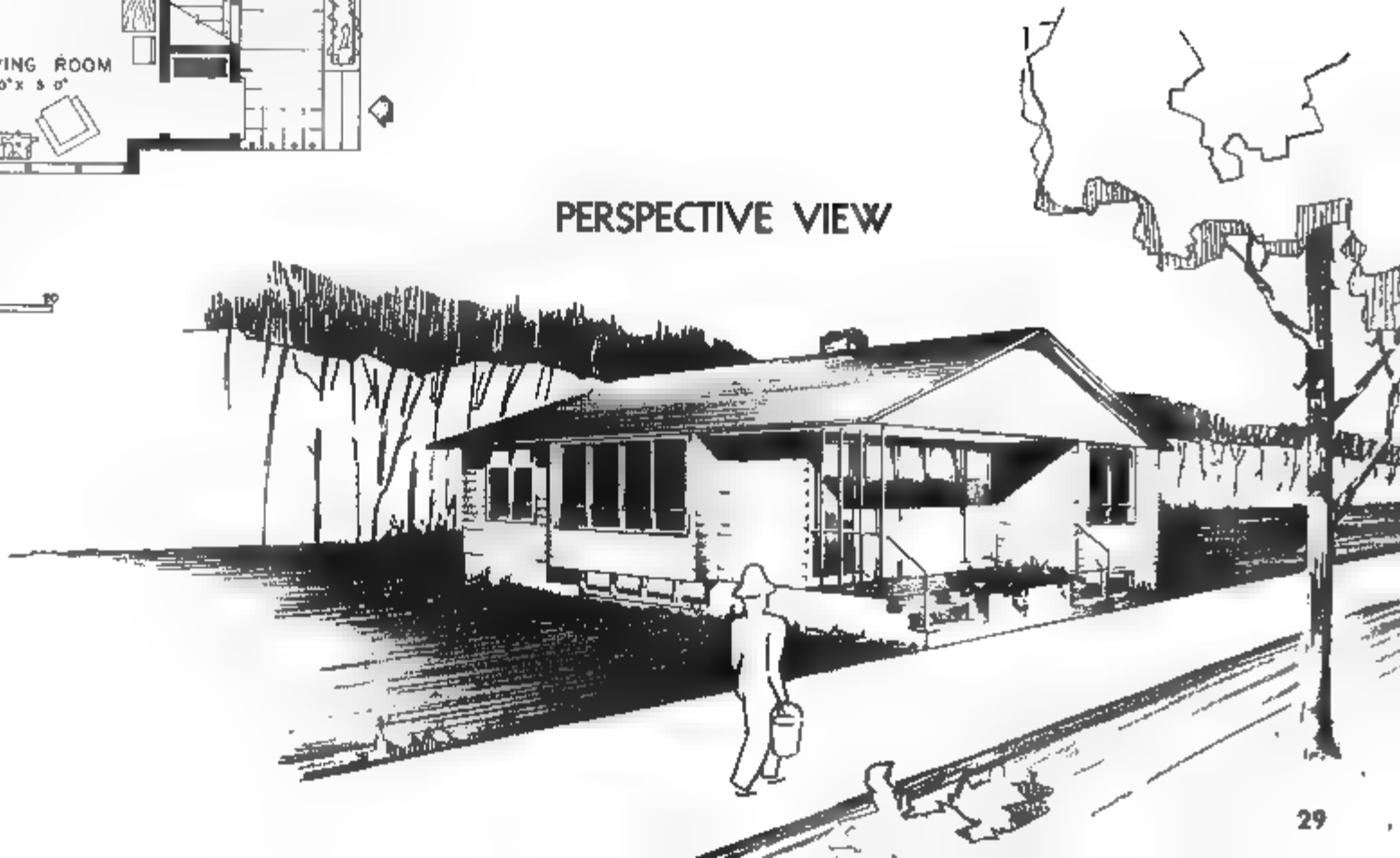


PLAN No. 9

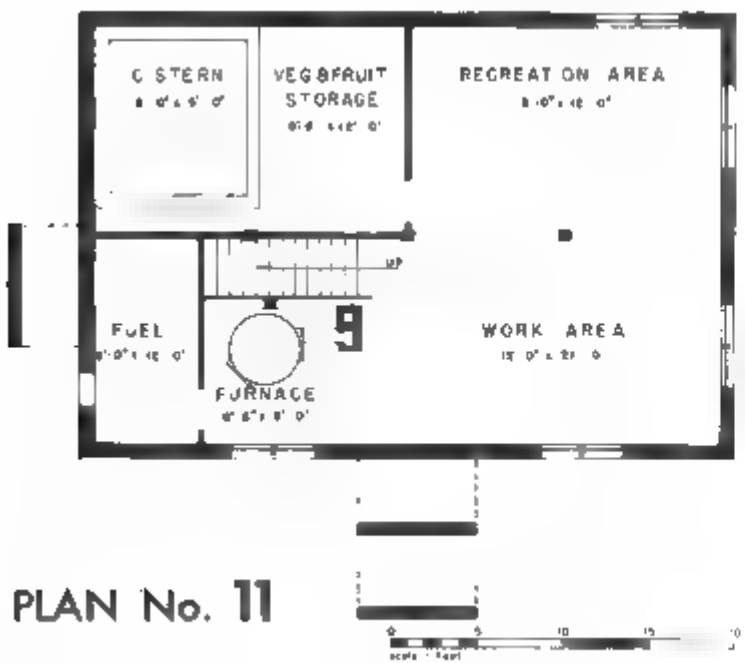


MAIN FLOOR PLAN

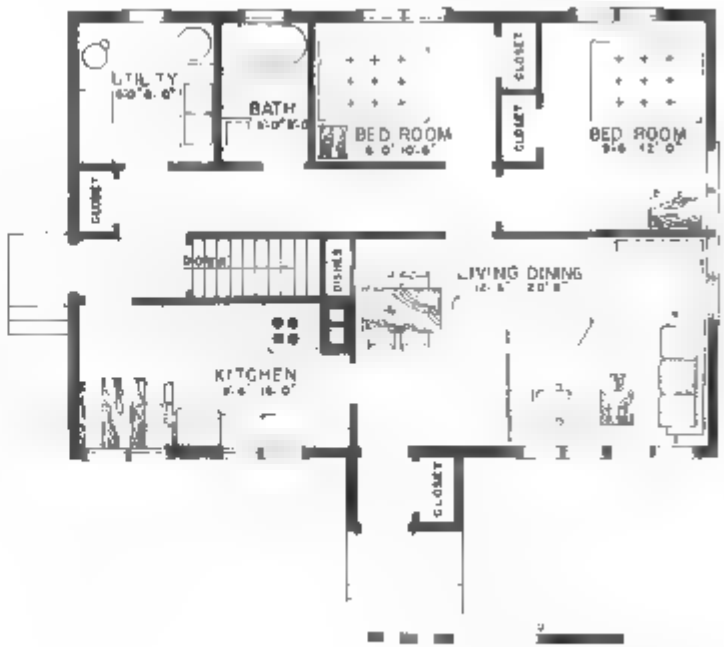
PERSPECTIVE VIEW



VIEW FROM FARM DRIVE



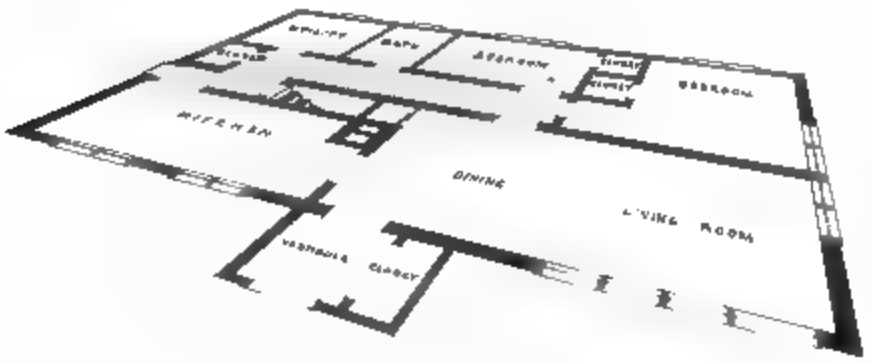
BASEMENT PLAN



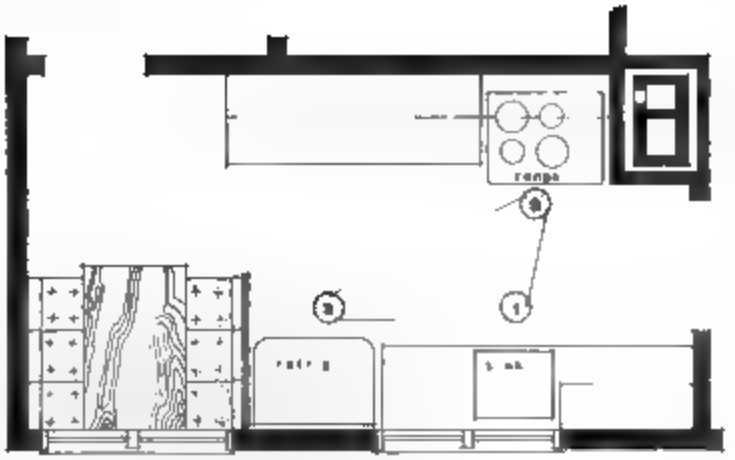
MAIN FLOOR PLAN

PLAN No. 11

This small home has been carefully designed to meet the requirements of a small farm family. It is in reality a spacious four room bungalow with the additional work area or utility room usually required for the many and varied farm activities.



PLAN CIRCULATION



KITCHEN ARRANGEMENT

The rear entrance opens to a central hall which provides access to any area in the house — basement, utility room, kitchen, bathroom, living room or bedrooms. A clothes closet is provided near this entrance. The proximity of the utility room to this entry suggests that it be used as a wash up area in addition to serving its primary purpose as the laundry and cream separating room.

The basement provides a fruit and vegetable storage room, furnace room, fuel room, soft water cistern and large work area. This area could be used as a work shop, hobby room or if properly finished, could serve as a recreation room.

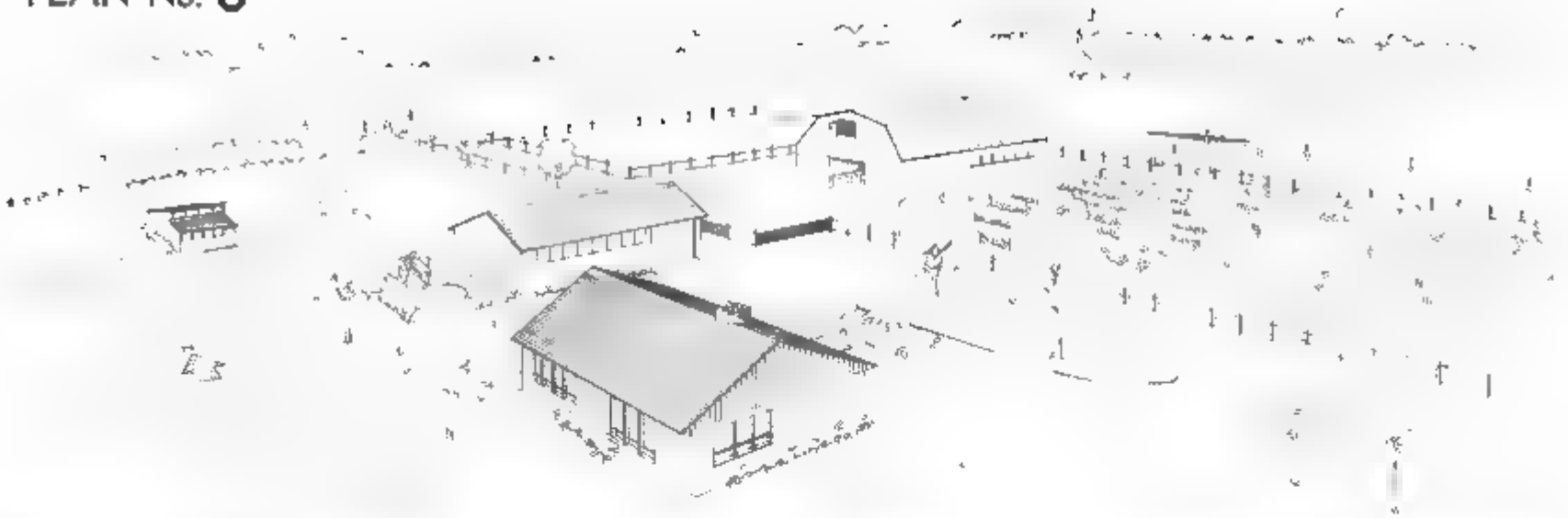
The kitchen has a corridor type arrangement with refrigerator and sink on one side and range and work counter on the other. A convenient dining-booth has been suggested for meals not served in the larger living-dining area.

The living room is a large adequately lighted area with south and east exposures. The large expanse of glass on the south is sheltered from the sun by the overhanging roof.

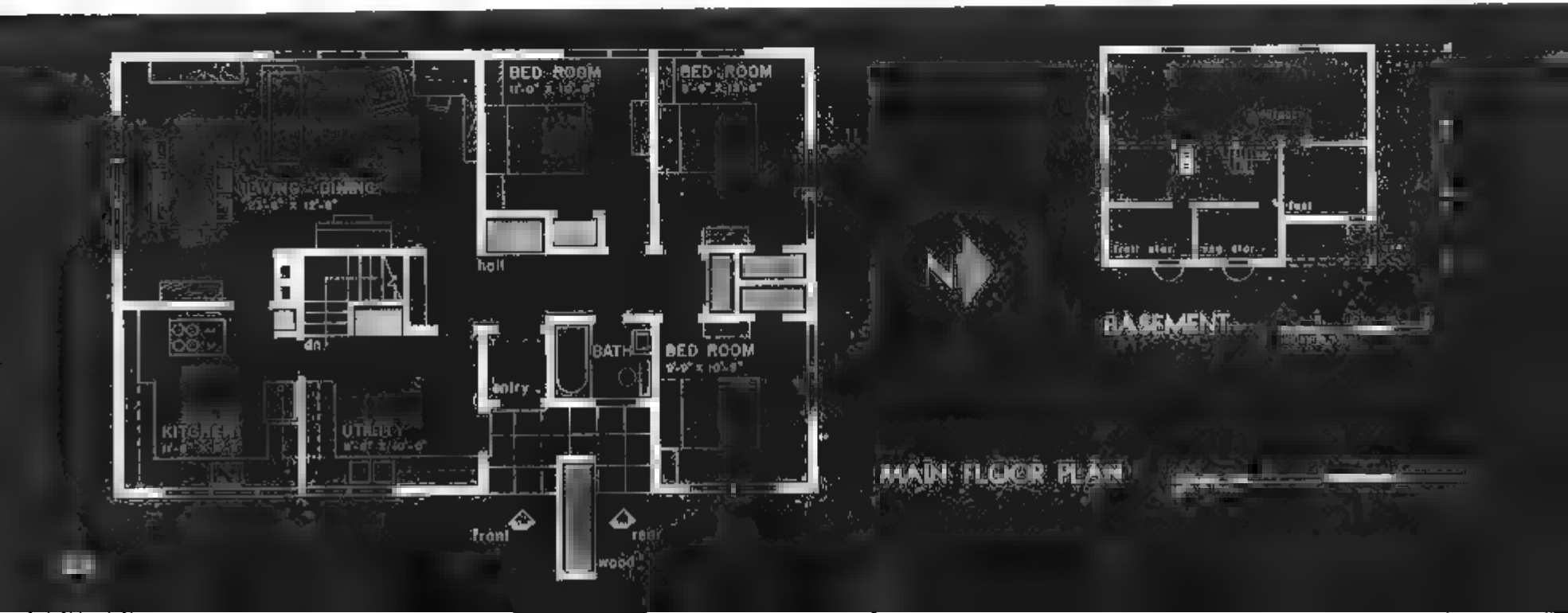
The two bedrooms are standard size with adequate clothes storage facilities. In an effort to confine traffic to the work area of the house during the greater part of the day, the bathroom has been located adjacent to the utility room and near the rear entry. This arrangement permits a more compact plumbing system, and consequently minimizes piping.

Overall dimensions: 38' x 26'
Ground floor area: 988 sq. ft.

PLAN No. 6



SITE RELATIONSHIP



No. 6

This house has been planned around a central entryway which opens from a common front and rear entrance porch. This porch is neatly divided by a wood storage unit. From the porch, easy access is provided to all parts of the house. You can go directly to the utility, the kitchen or the basement. By turning right from the entry you can reach the bathroom and bedrooms without tracking through the rest of the house.

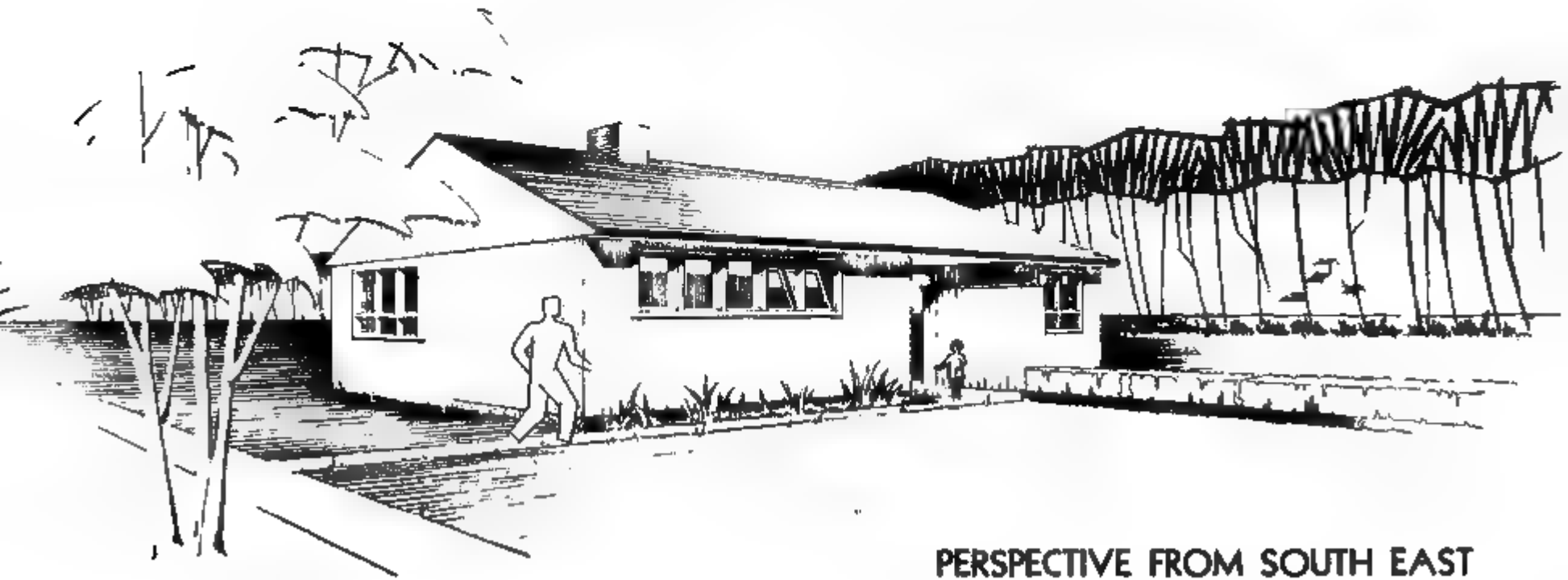
The kitchen and utility rooms are arranged in such a manner as to provide maximum counter space and usable work area.

The living-dining areas are arranged for a variety of family activities. The main conversation group is situated near the west window area. The large dining table with seating for eight is at the south end of the room near the windows, with a view towards the front lawn and highway. A small office desk is conveniently located opposite the living room entrance. Farm bookkeeping and accounting could be done at this desk.

The bedrooms are conveniently located in relation to the bathroom and the living room. A large linen closet has been provided at the end of the bedroom hall.

The basement layout provides for fruit and vegetable storage, heating space and fuel storage. A large section of the basement has been left open for work benches or additional cupboard space. If it is anticipated that further space might be needed, the basement should be extended to include the area shown as unexcavated.

Overall dimensions: 46' x 29'
Ground floor area: 1268 sq. ft.



PERSPECTIVE FROM SOUTH EAST

PLAN No. 12

This large house presents a different approach to farm house planning and has many new and interesting design features. The kitchen, dining and living areas are designed for a maximum integration of activity

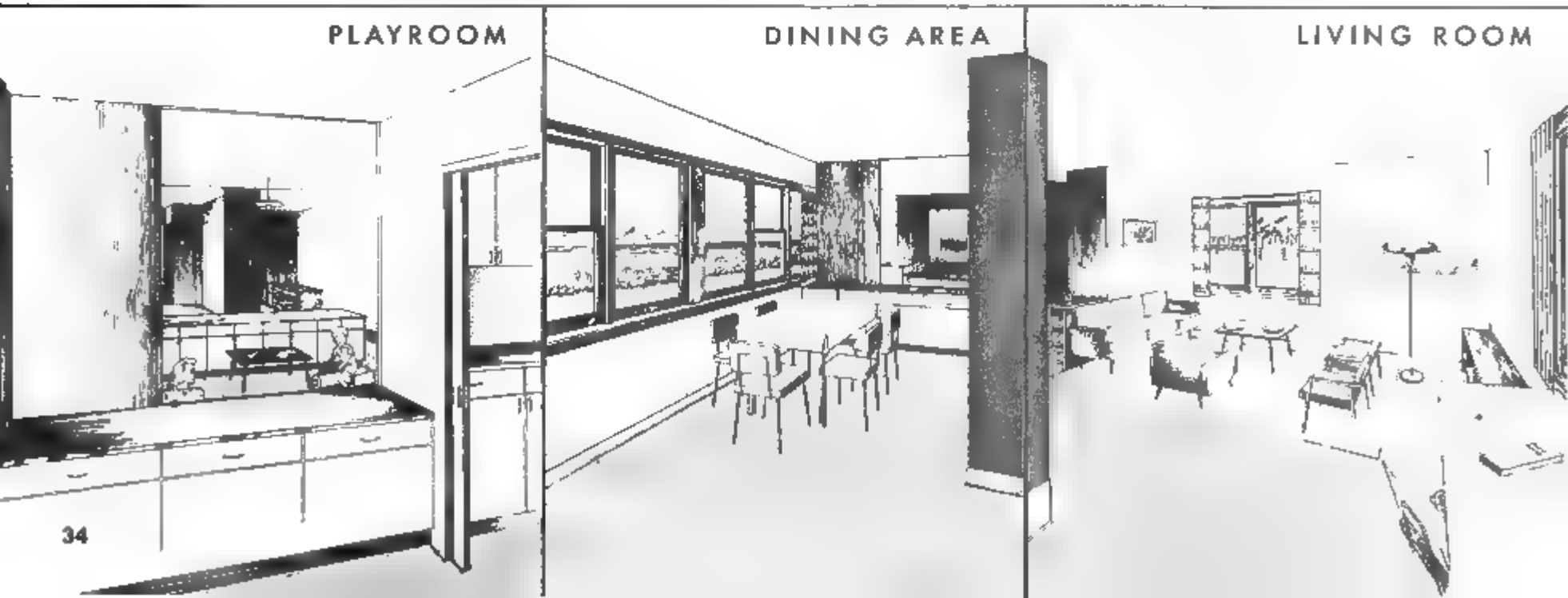
The flat roof may be more economical to build over this large span than a gable type roof. If a tar and gravel type roofing is properly applied, it should give many years of service and would be easily maintained

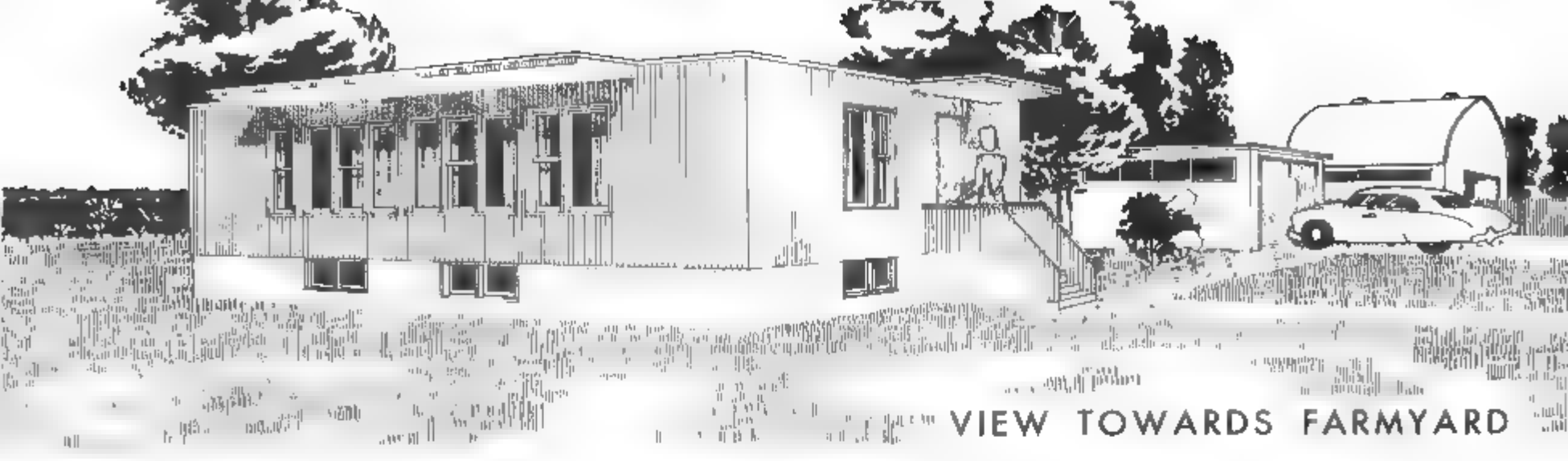
The back entrance is at grade level and a small utility area is provided off the stair landing This utility room contains laundry tubs and counter top cupboards. Directly across the hall is the kitchen which, although small, is designed for efficiency The kitchen receives light from an overhead clerestory that is illustrated in the cross-sectional view shown on the opposite page The dining area forms an "L" with the living room, creating a large bright area suitable for the many activities carried on by a growing farm family An office or guest room is situated off the living room where it can be easily reached from both front and rear entrances The children's bedrooms adjoin a large playroom which is separated from the dining area by a low storage wall with a movable panel above This playroom allows the children a certain amount of privacy keeps them out of the living area, and yet, because of the movable panel, does not completely isolate them The housewife, working in or near the kitchen has supervision over the area

The large basement contains a cistern, a storage room, fuel and furnace rooms and a spacious recreation room

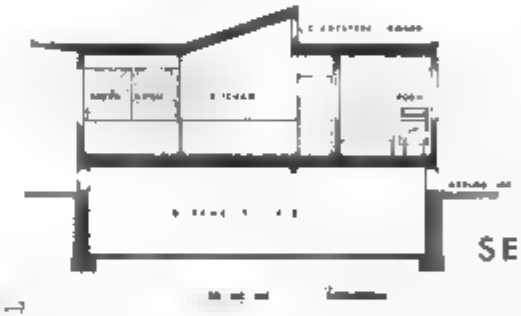
In a house of this size, a forced air type of heating system is suggested This would be necessary if the basement area were partitioned off into various small rooms. If a gravity type system were used the recreation area would not be practical because of the necessity for the large cumbersome duct work

Overall dimensions: 30'-6" x 42'-6"
Ground floor area: 1296 sq. ft

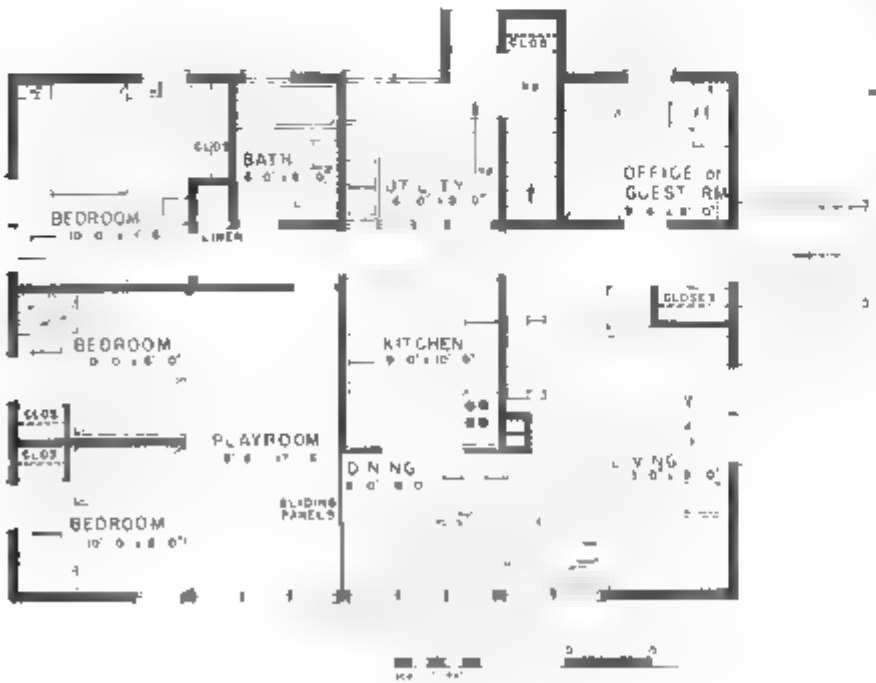




VIEW TOWARDS FARMYARD

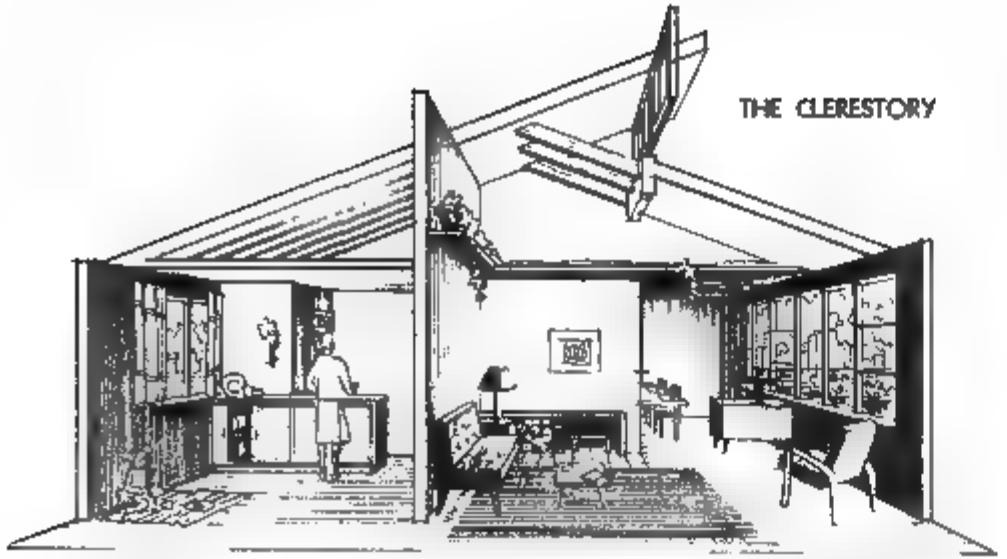


SECTION

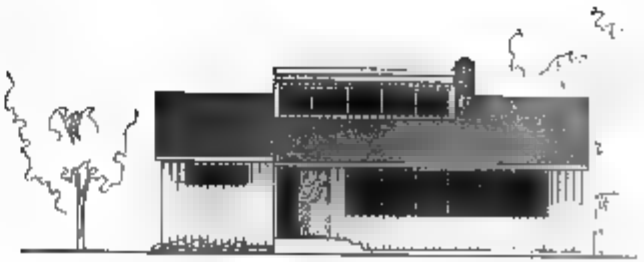


MAIN FLOOR PLAN

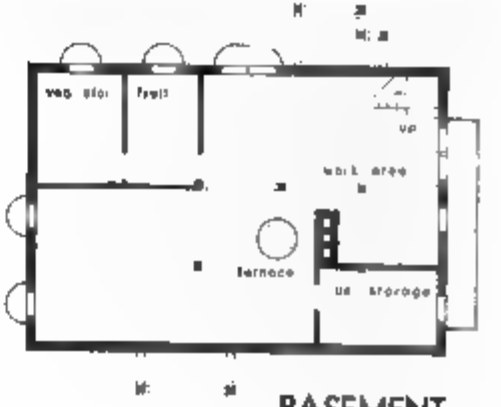
BASEMENT PLAN



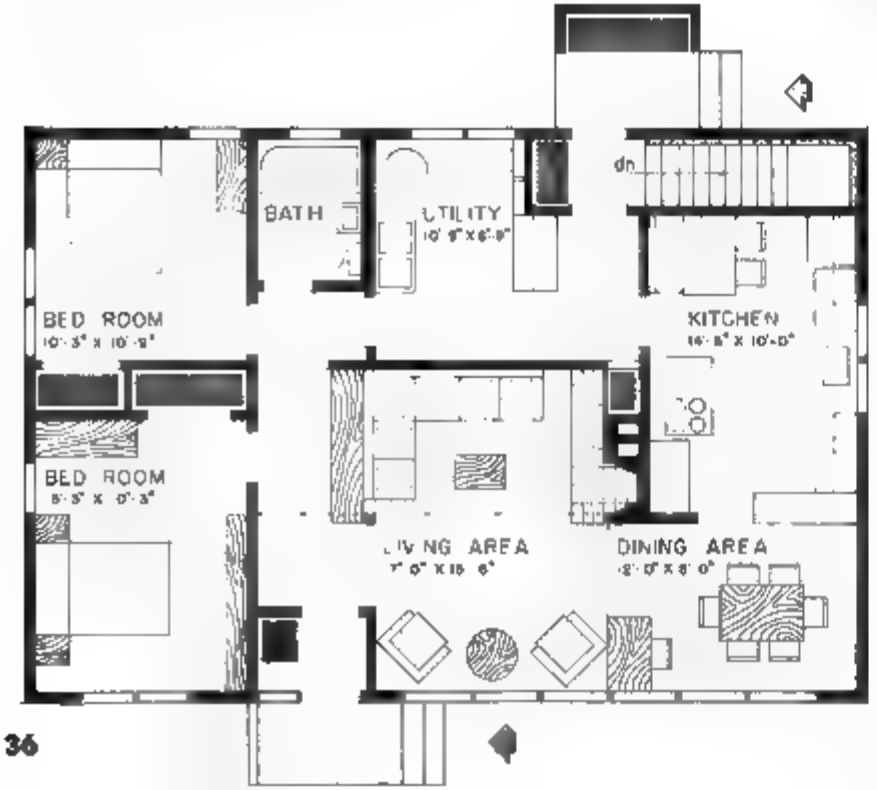
CUT-A-WAY INTERIOR VIEW



FRONT ELEVATION



BASEMENT

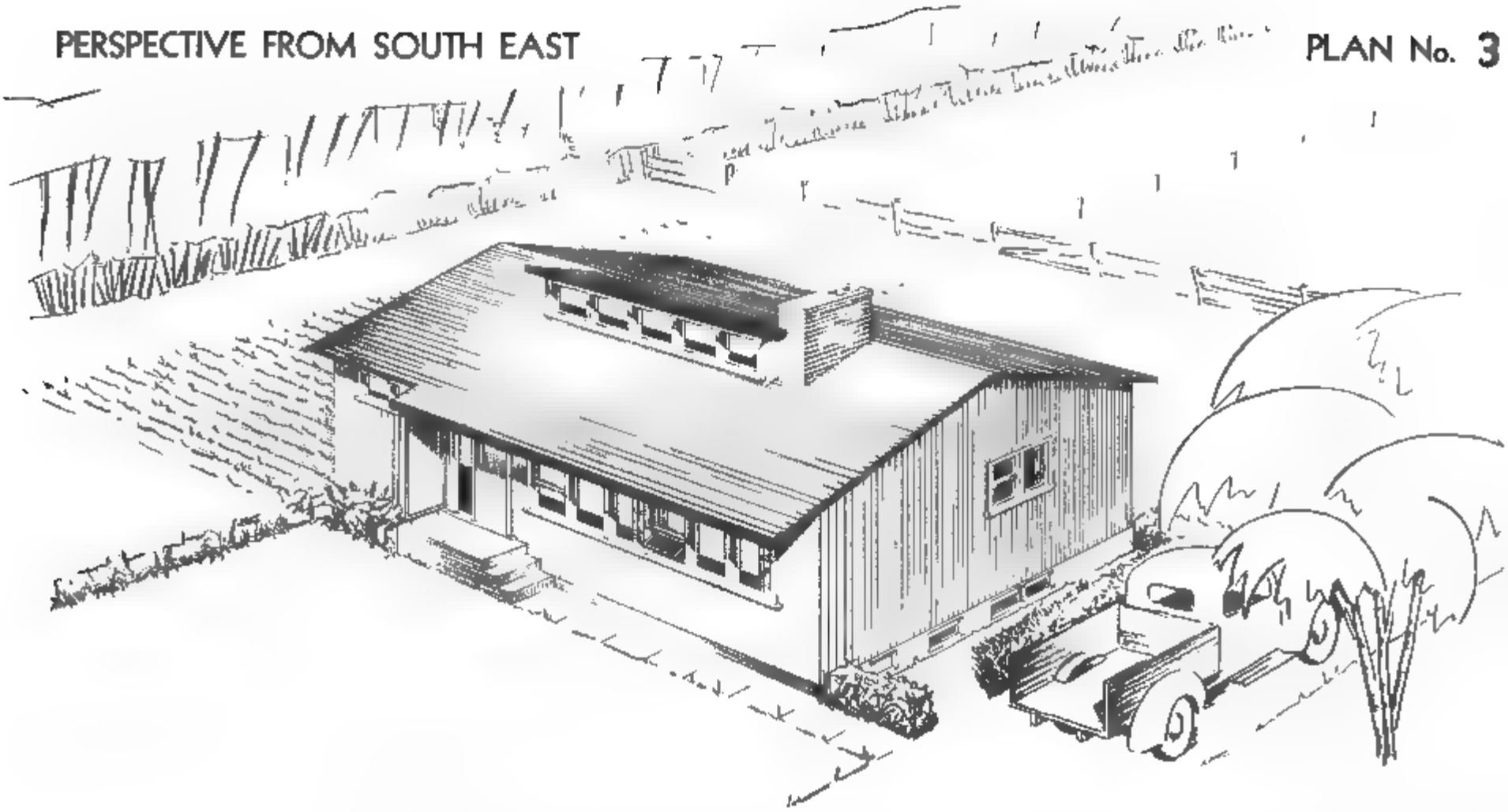


MAIN FLOOR PLAN

No. 3

PERSPECTIVE FROM SOUTH EAST

PLAN No. 3



The aerial view shows the simplicity of design of this particular farm home. Its long low roof line will fit into the prairie landscape. The roof clerestory windows introduce ample sunlight into the center of the living room and provide an excellent escape for warm summer air. Should these advantages not seem to warrant the expense involved, the clerestory construction could be eliminated and a flat ceiling placed over the living area. The floor plan on the opposite page illustrates the ease of circulation possible from room to room. All parts of the house are easily reached from the back door, leaving the front door mainly for guest use. By the use of a low counter which forms the west wall of the living room, waste hall space has been minimized.

The cross-section through the middle of the house (see opposite page) gives an idea of how pleasant the living room can be with the simply constructed overhead windows.

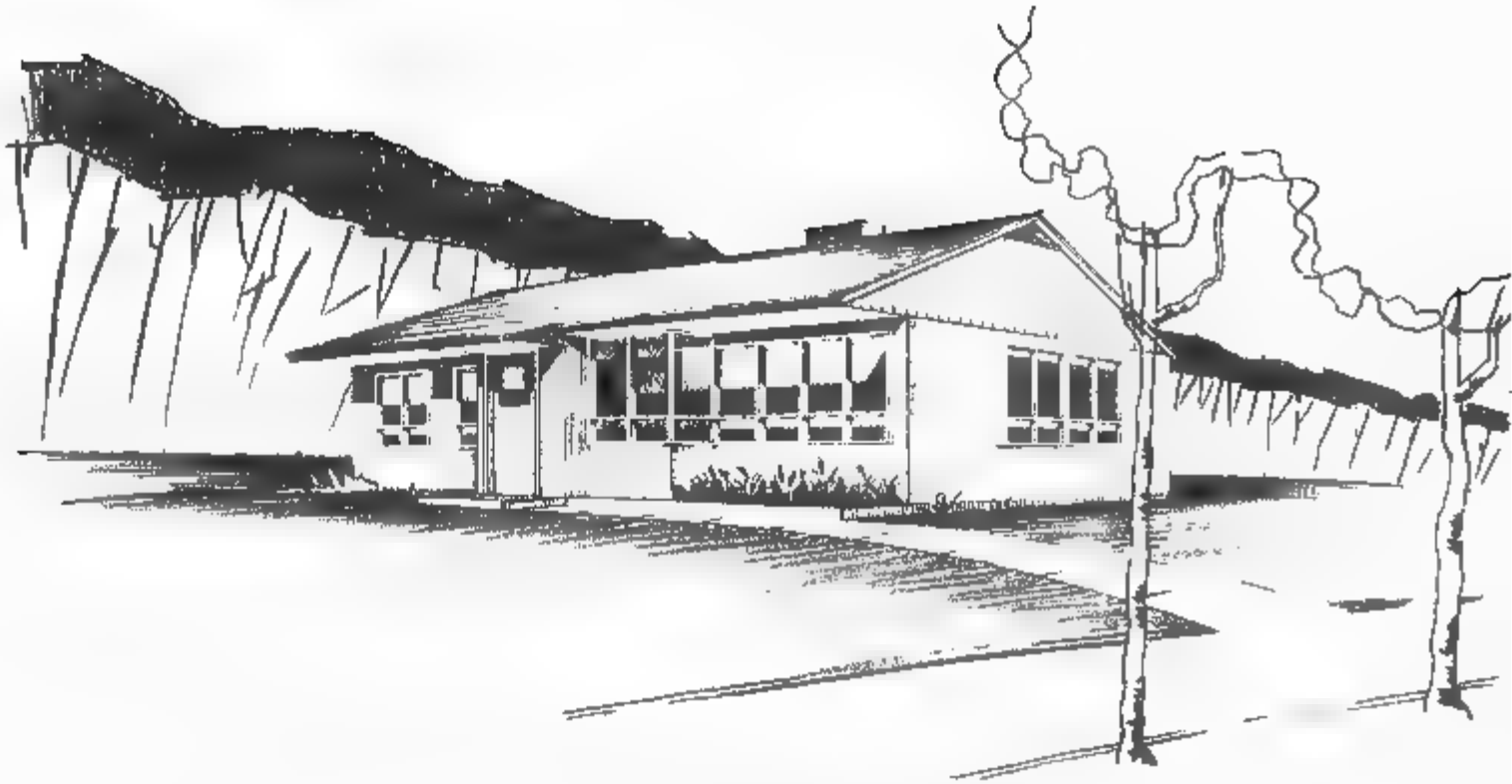
A pleasant grouping of furniture around the fireplace takes advantage of the coziness of the room and, at the same time, makes the most of the view presented by the large south windows. The kitchen is well arranged for efficient food preparation and cooking. A dinette area has been provided in proximity to the rear entrance and the utility wash-up area.

The bedrooms are of sufficient size and have ample wardrobe closets. The bath is near to the service, sleeping and living areas of the house.

A full basement has been provided containing convenient work area, fruit and vegetable storage, furnace and fuel storage.

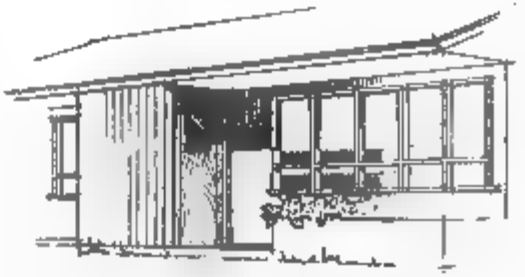
Overall dimensions: 41' x 28'
Ground floor area: 1148 sq. ft.

PLAN No. 5-A



PERSPECTIVE FROM SOUTH EAST

ALTERNATE FLOOR PLAN



ENTRY

MAIN FLOOR PLAN

This compact one storey house has a number of favorable aspects

It has front and rear entrances protected from the cold winter winds by vestibules

Convenient wood storage is provided in the rear vestibule and coat storage in the front vestibule

The utility room is well located in relation to all other service areas in the house. It has been designed for the laundry area as well as for other services

The kitchen is planned for systematized meal preparation. Continuity of meal preparation, cooking and serving is provided by a U type arrangement starting from the refrigerator along the work counter and sink to the range and then to the dining table

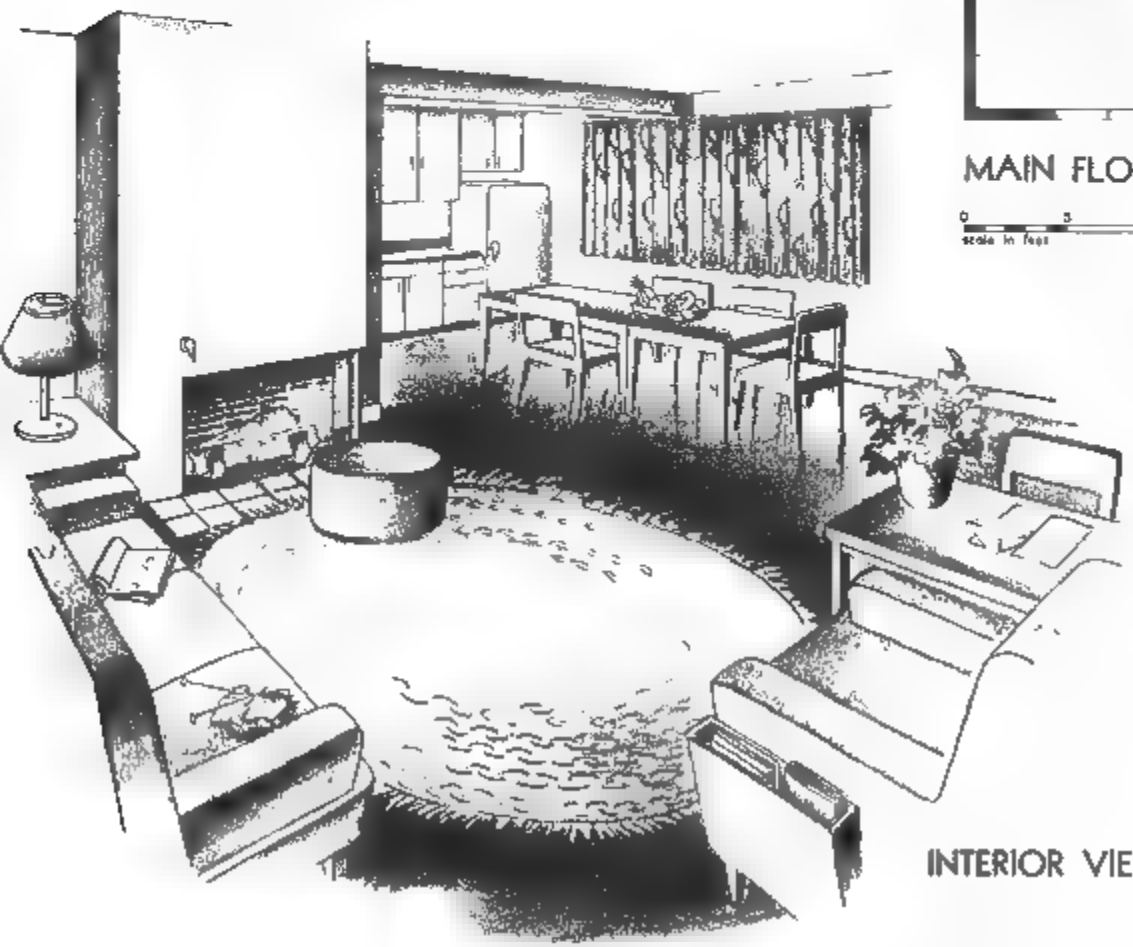
A convenient dining arrangement is provided by a pass-through table which can be used in the kitchen for everyday eating or in the dining area for Sunday meals.
By removing the pass-through partition, greater flexibility and spaciousness will be provided for kitchen, dining, living area, as shown in the interior view and the alternate floor plan

The living room is very bright, with a large band of windows along the southern wall. A comfortable grouping of furniture is possible around the fireplace, with the dining table available for cards or other games, writing, studying or sewing

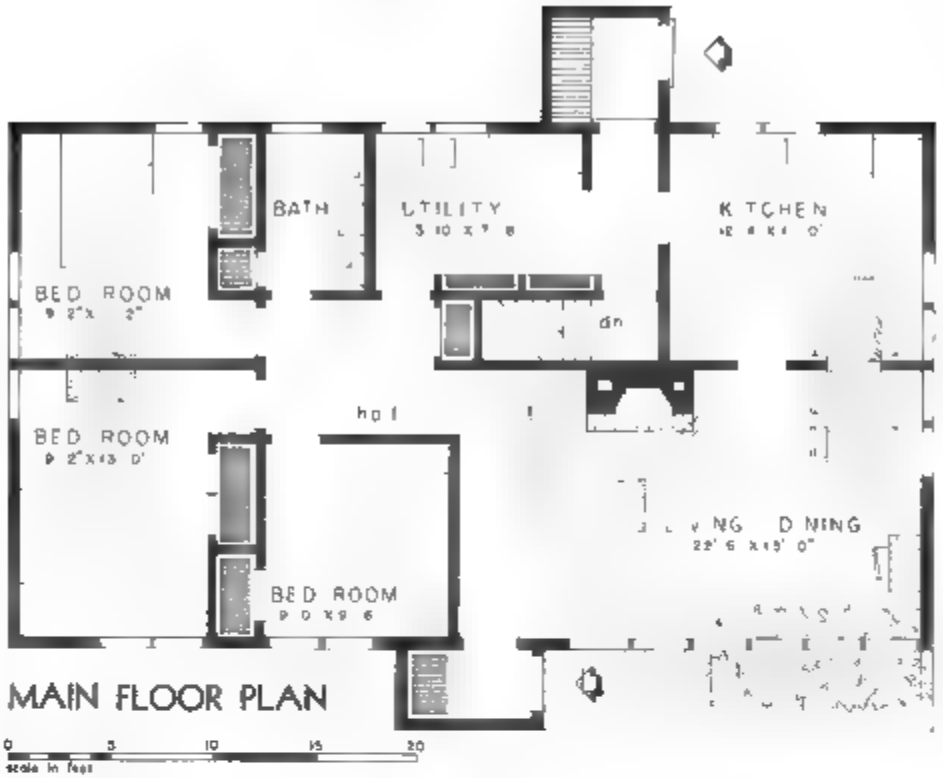
The bedrooms are compactly arranged around the central hall and are accessible from the front entrance without the inconvenience of passing through the sitting area of the living room. They are also conveniently close to the bathroom. Ample wardrobe clothes space is provided in each unit

In the basement all the required standard storage and heating facilities will be found. With a moderate increase in cost, the space under the west bedrooms could be excavated and finished to serve any additional needs

BASEMENT



INTERIOR VIEW



MAIN FLOOR PLAN

ALTERNATE FLOOR PLAN

No. 5-A

Overall dimensions 45 x 26 Ground floor area: 1170 sq. ft

PLAN No. 15

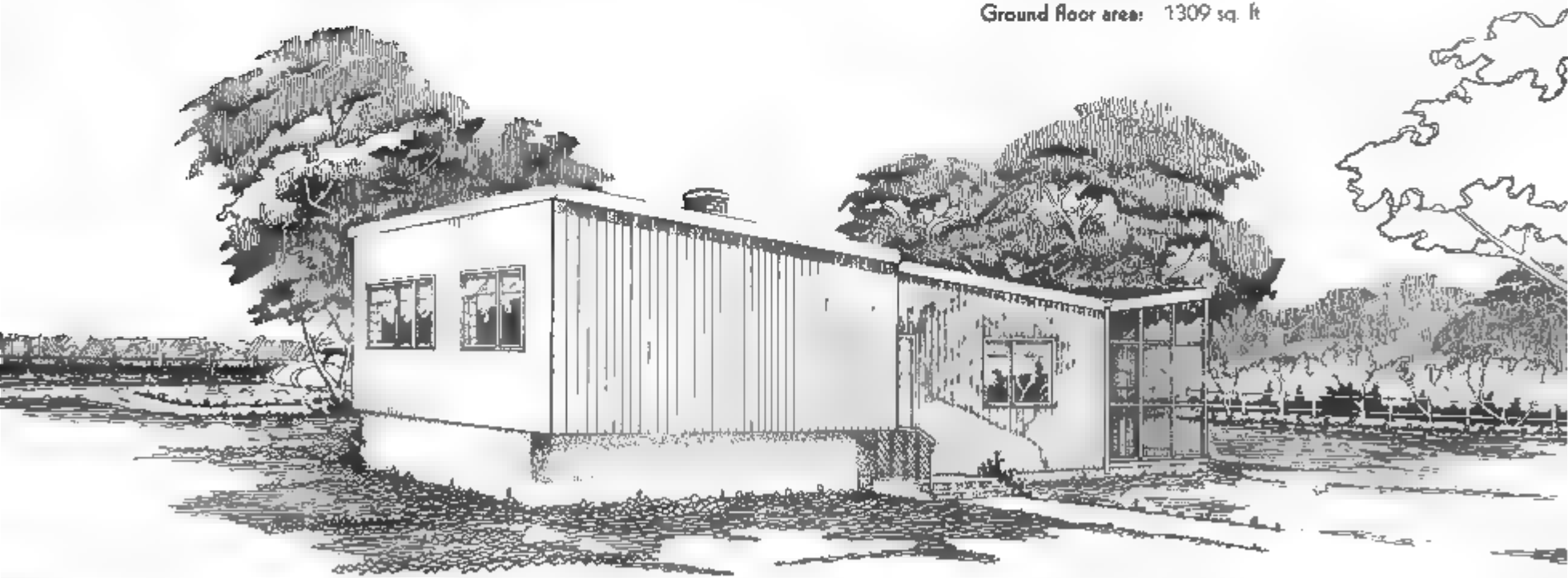
The split-level type of plan is gaining rapid popularity among home builders. A new split-level design is illustrated here. It emphasizes straightforward construction and an efficient plan which has been designed to give the most useful space on three separate but closely connected floors. The structure is such that a minimum amount of labor is required in construction. The result is a house, unusual in appearance, and unexcelled in comfort and convenience.

A study of the plan shows that at ground level there is a large, fully equipped electric kitchen, a living room planned to be furnished with chesterfield and chairs, piano, and dining table and chairs. There is also a wide screened porch across the end of the house. From one corner of the living room five steps go up to the bedroom level. On this level there are three bedrooms and a bathroom grouped around a central hall. Each bedroom has adequate closets and there is a linen closet which is accessible from the hall.

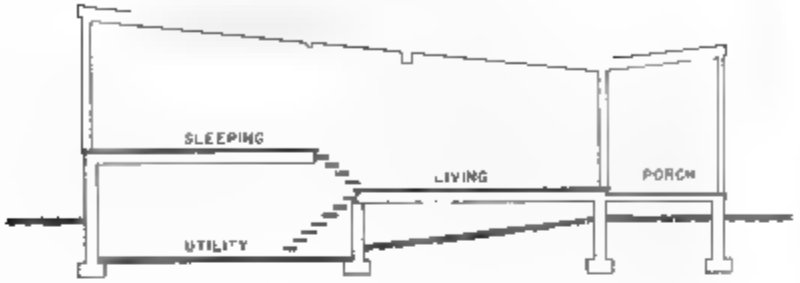
From the ground floor level eight steps lead down to the basement area which is directly under the bedroom level. The utility room is located in the basement. The rest of the basement area is occupied by a fuel and furnace room and a storage room. There is no excavation necessary under the kitchen and living room except for the foundations and the concrete cistern. The deepest part of the house foundation is just below the frost line, but the base of the cistern will extend eight or nine feet into the ground.

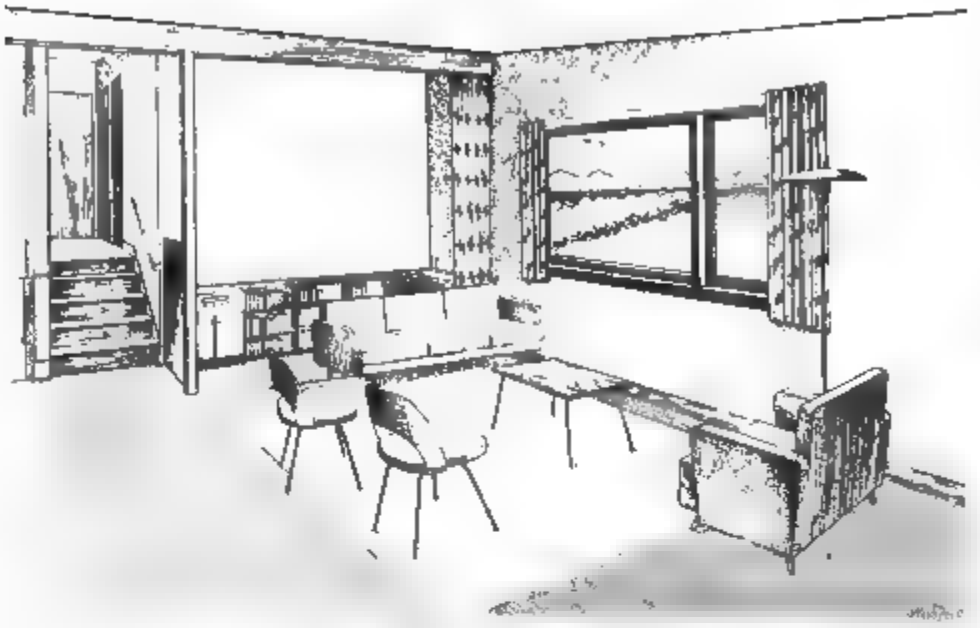
There are several items to note about the exterior finish of the house. The shallow sloping roof will have a tar and gravel surface. This is an economical, permanent roofing material which requires little maintenance. The exterior siding is cedar boards applied vertically and painted with clear varnish. This siding is easy to apply and the attractive natural colour of the cedar is protected by the varnish.

Overall dimensions: 28' x 46' 9"
Ground floor area: 1309 sq. ft.



PERSPECTIVE FROM NORTH EAST

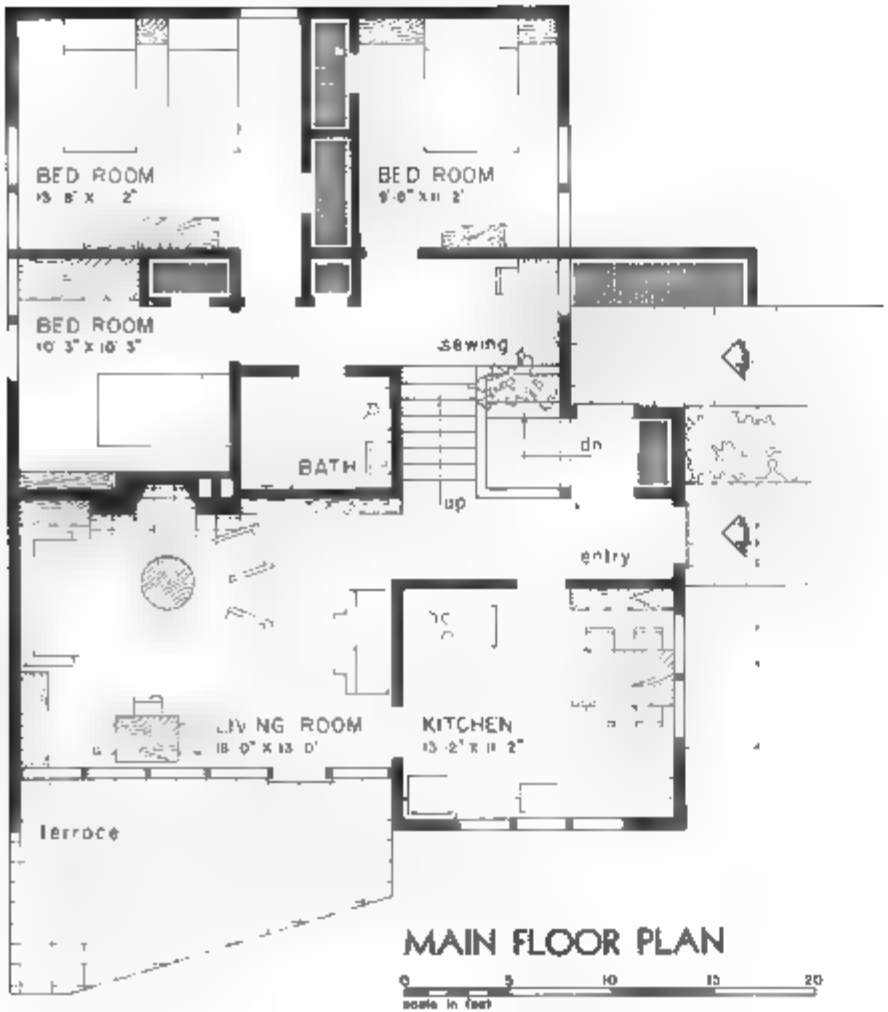




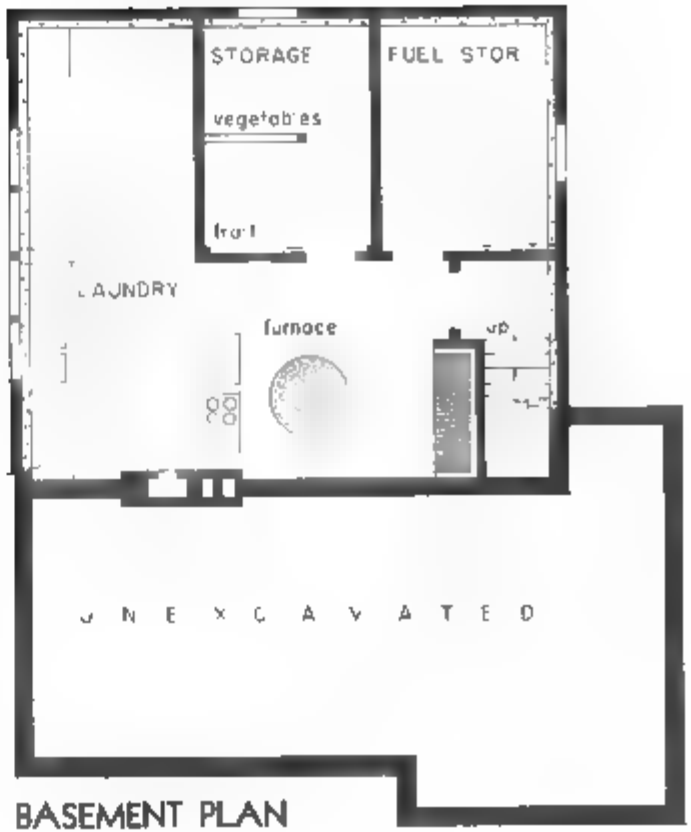
LIVING ROOM

MAIN FLOOR PLAN

BASEMENT PLAN



MAIN FLOOR PLAN



BASEMENT PLAN

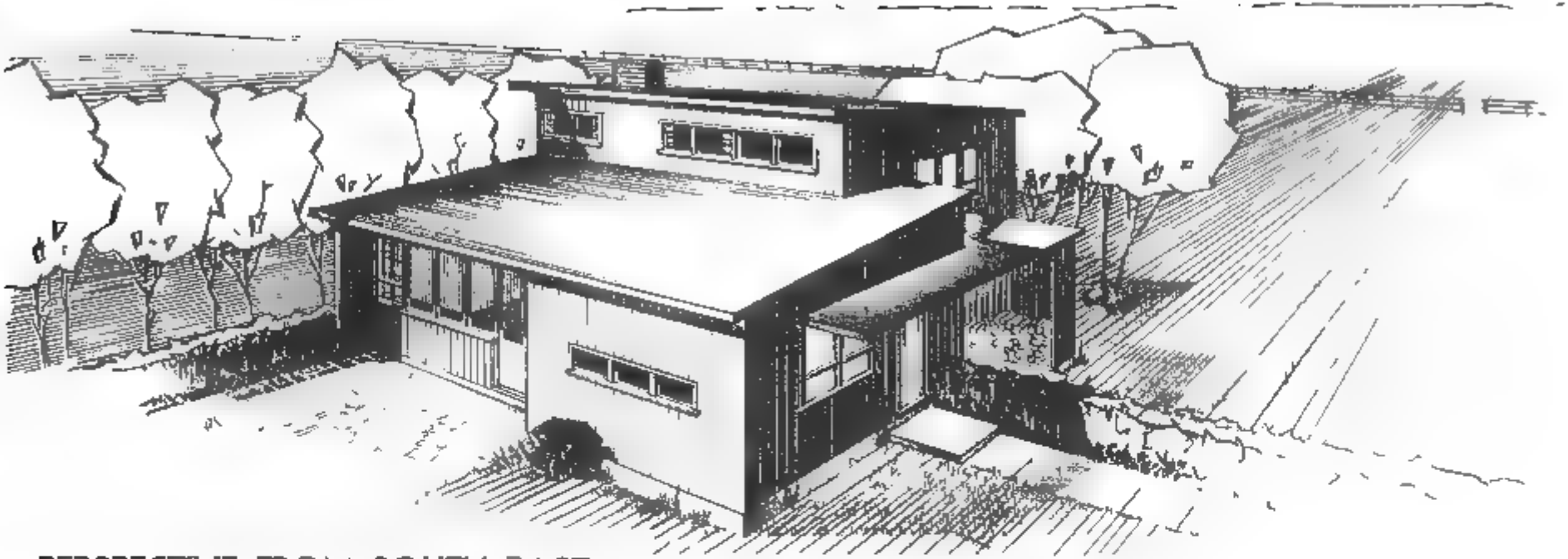
No. 7

Overall dimensions: 32' x 40'
Ground floor area. 1151 sq. ft.

'Saving the Steps' in this case refers to the minimum distances required to travel from one area to another within the house. This saving of steps is made possible by a three level floor scheme (see cross section opposite page). Looking at this cross section you can see that there are three closely related floor levels. From the ground level, which includes the kitchen, dining and living areas, you need go up only eight steps to the bedroom floor level, or down six steps to the basement. By walking but a few steps from the kitchen the housewife can go to the front or rear entrance doors, and keep an eye on activities both upstairs and downstairs. This compactness of plan will result in an appreciable saving in time and physical effort for the entire family.

The front and rear entrances open into a common vestibule provided with ample wood and coat storage space. These entrances are protected by a single canopy carrying along the east wall of the house. The door leading from the living room to the terrace may be used as a front entrance for visitors.

The kitchen area as indicated includes a dinette near the entrance, counters, sink and refrigerator along the south wall and the stove placed separately in the north-west corner. Since the kitchen is rather far from the chimney and a gas, coal or or



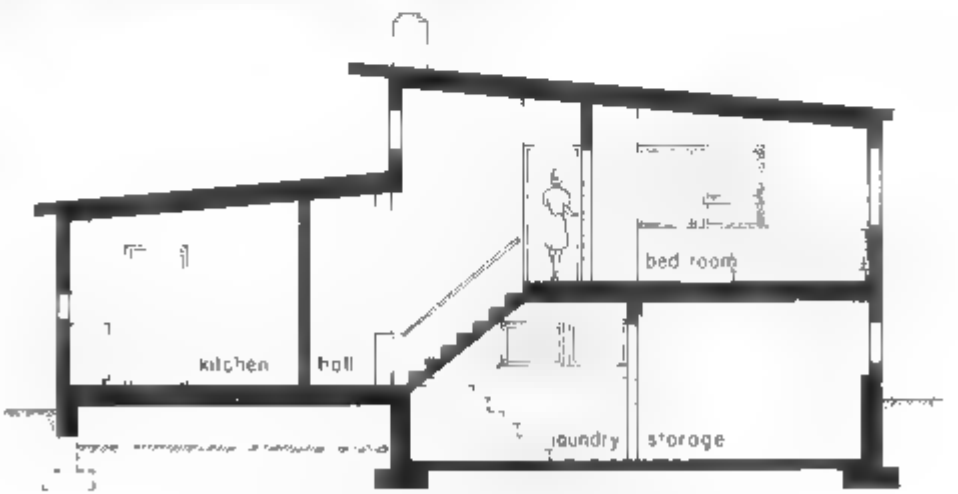
PERSPECTIVE FROM SOUTH EAST

electric range must be used, a revised and improved kitchen layout is being suggested on the working drawings. By placing the dinette in the corner between the two doors, an L shaped work counter with refrigerator, sink and stove along the east and south walls is possible. This would require a slight change in the windows along the south wall.

The large living room presents many possibilities for pleasant furniture arrangement. A nice conversational grouping has been centered on the fireplace, with a dining, game or study table placed near the south windows overlooking the terrace. The sewing desk located at the head of the stairs on the upper floor level will enable the housewife to supervise activities in various parts of the house. This area could, of course, be used just as well for office work.

All bedrooms are of ample size and have adequate wardrobe closet space. A linen closet is conveniently located in the hall.

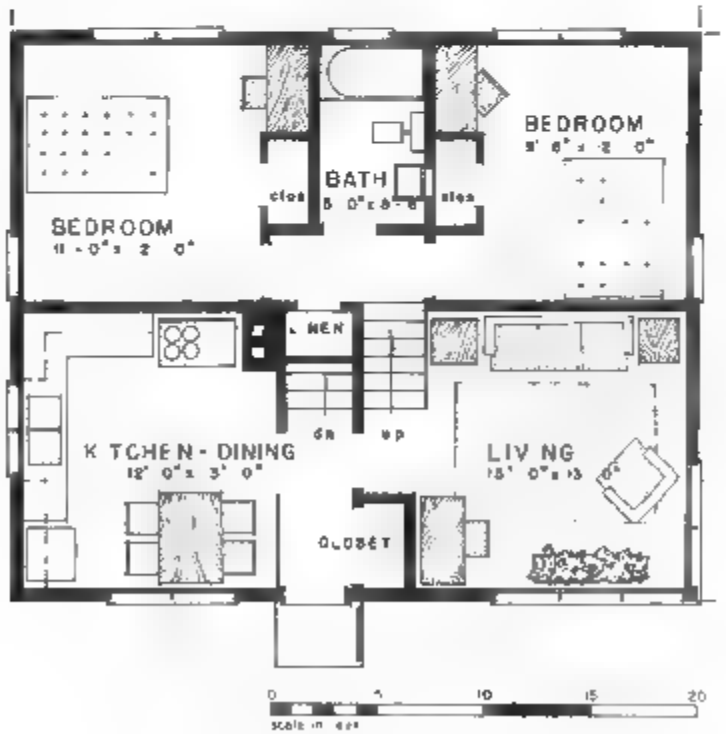
This three level scheme definitely reveals its advantages in the basement area where less excavation is required, resulting in a saving of labor and materials. In addition to this, larger windows are possible, providing a more pleasant and usable basement area. The basement of this house contains the laundry-utility area, fruit and vegetable storage rooms, the furnace area and large fuel storage room.



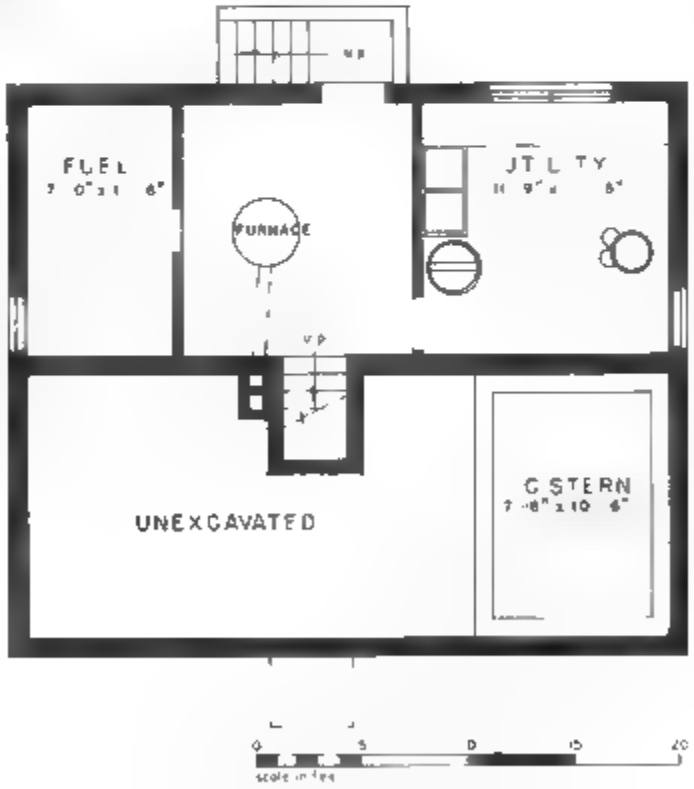
CROSS SECTION THROUGH HOUSE

PLAN No. 13

PERSPECTIVE VIEW



MAIN FLOOR PLAN



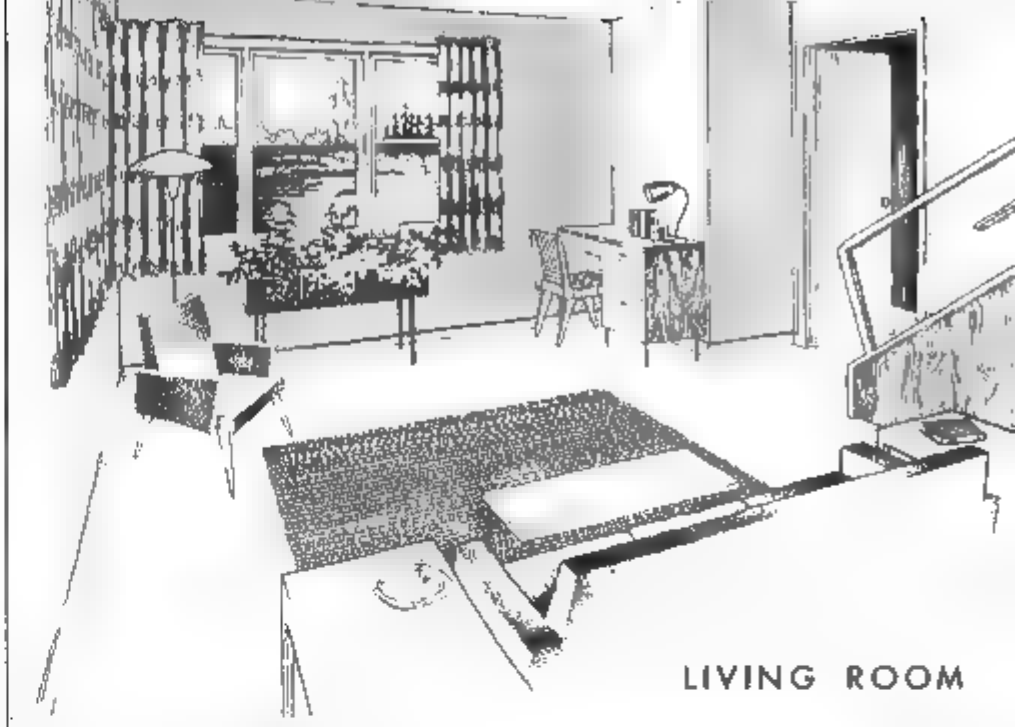
BASEMENT PLAN

This plan illustrates that by using a split level arrangement habitable floor area equal to that provided by some of the other plan types is possible within a smaller ground area.

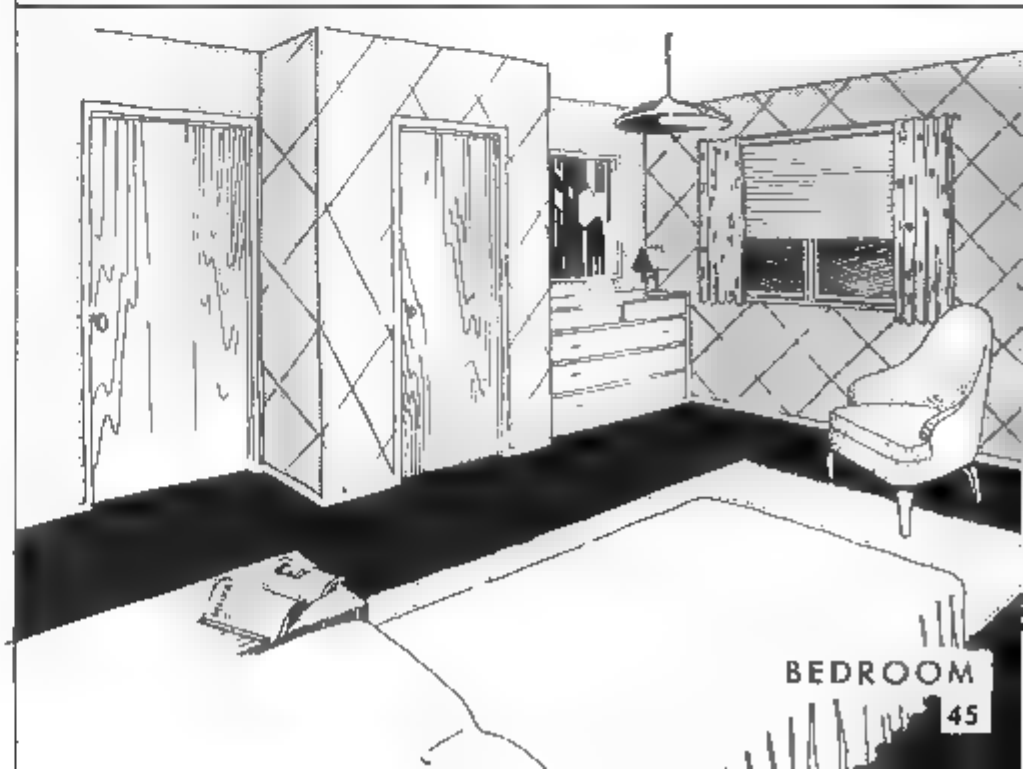
The plan of ground level consists of the kitchen, dining room and living room. The basement which is one half a flight or seven steps down from the main floor contains a bedroom, furnace room and a garage or utility room. The upper level which is seven steps up from the main floor consists of two bedrooms and a bathroom. The bedrooms are large and have adequate storage cupboards and built-in dressing tables. A linen closet is located off the hall opposite the bathroom.

The fact that the basement floor is only a few steps below grade level facilitates the direct connection between front yard and utility area.

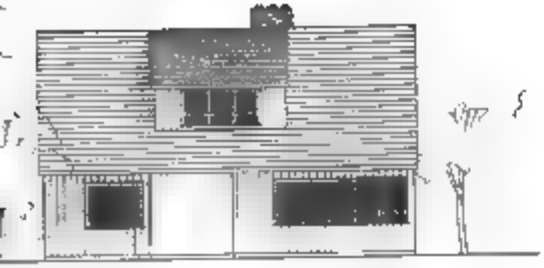
Overall dimensions: 26' 6" × 32'
Ground floor area 848 sq. ft.



LIVING ROOM

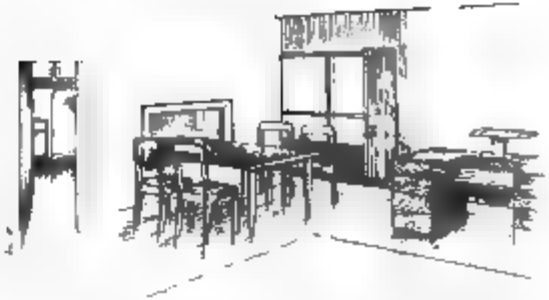


BEDROOM



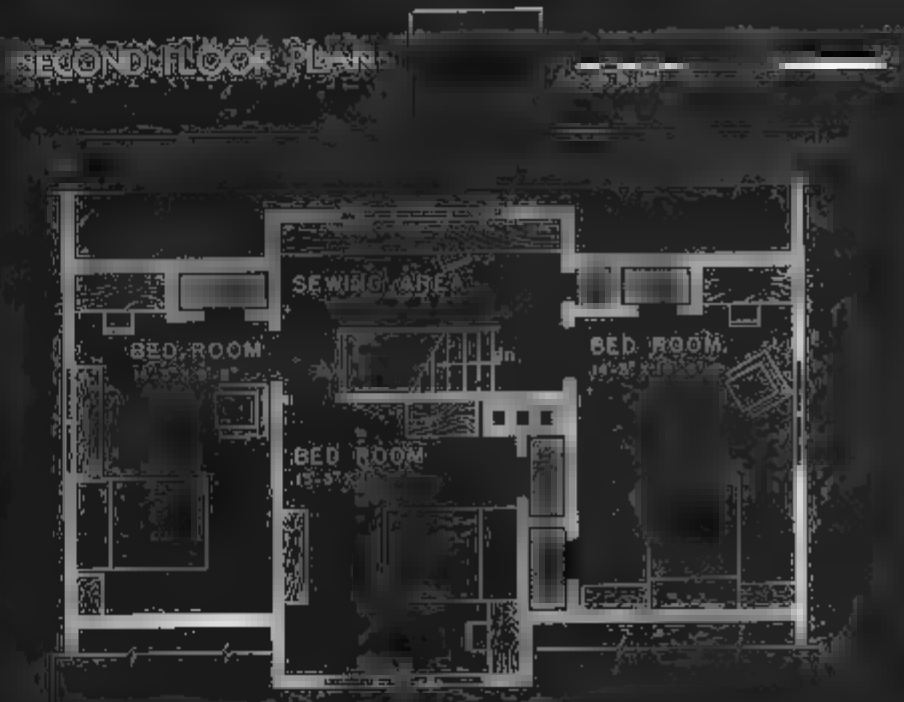
SOUTH ELEVATION

EAST ELEVATION



INTERIOR VIEW – DINING AREA

No. 5-B



PLAN No. 5-B

This one and one-half storey house has a number of advantages

There is easy access from the rear entrance to

- The kitchen and eating areas
- The work space in the utility room
- The basement with fuel and storage rooms
- The office or main floor bedroom.
- The bathroom.
- The three upstairs bedrooms

As in most of the plans it is possible to move from room to room without having to cut across the living room

The kitchen and utility rooms are large, with plenty of space for necessary activities such as washing clothes, preserving and cooking, and also for children's playing during unpleasant weather

The "pass-through" table in the kitchen and dining room is convenient as well as space saving

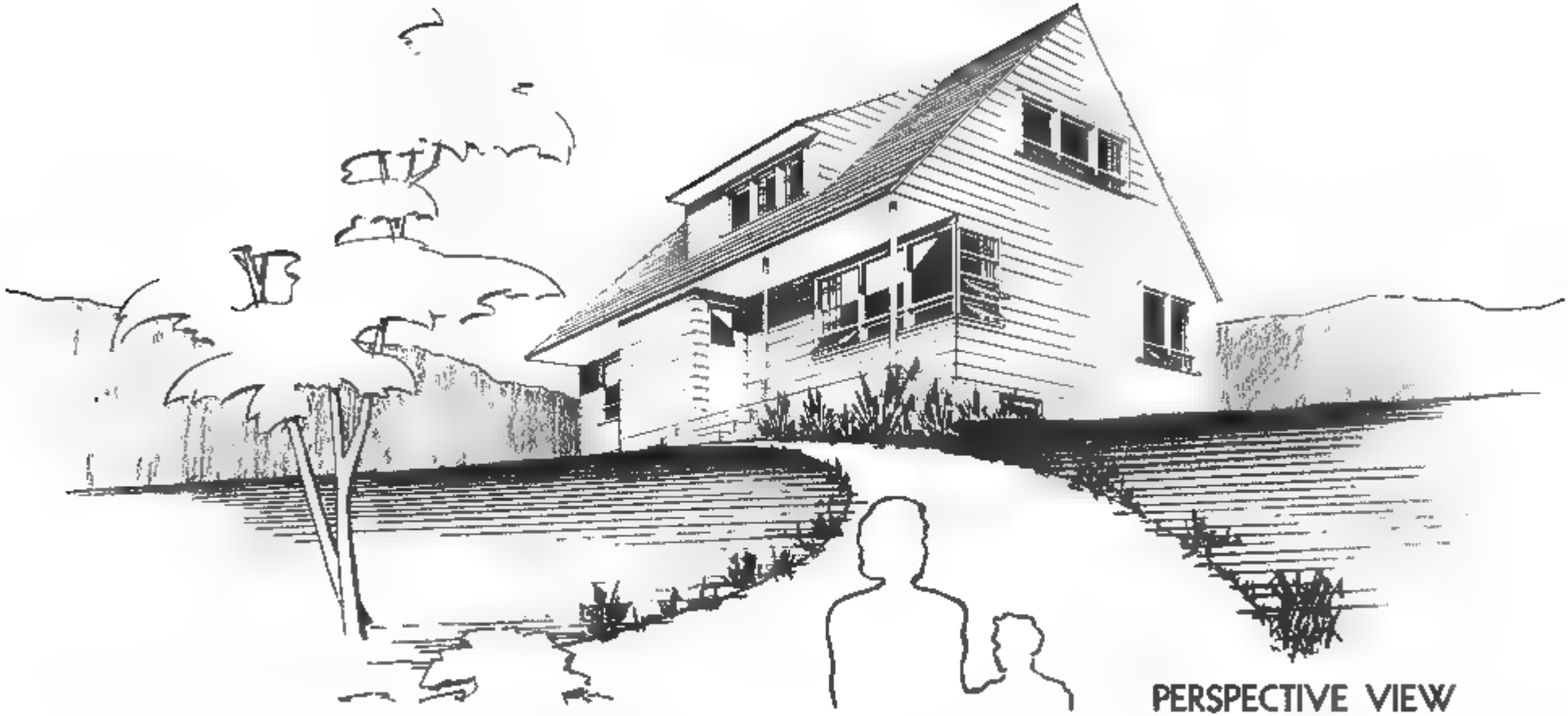
The living room arrangement is similar to that of Plan No. 5A, with a large area of glass on the south wall. This glass area is protected from the direct rays of the sun by the overhang of the roof.

The upstairs bedrooms and sewing area may be left unfinished until increased needs of the family demand more space

The dormer windows may be omitted in the initial construction and added later when the second floor rooms are completed

Overall dimensions: 36' x 26'
Ground floor area: 936 sq. ft.

PLAN No. 8



PERSPECTIVE VIEW

An economical and efficient plan distinguishes this compact one and one-half storey house.

Both front and rear entrances are protected from the cold winter winds by vestibules. From either entrance it is possible to reach the central hall and stairway which in turn lead directly to every area in the house.

The utility room to the right of the rear entrance is large and amply provided with counter and work space. The kitchen-dining area is located directly across the hall from the utility. This area is arranged for a maximum of efficiency. The refrigerator, stove and counters form a "U" arrangement conveniently located in relation to the dining area. It can be seen that where electricity is available and an electric range is used, more efficiency could be obtained by interchanging the range with the refrigerator.

The den could serve as the farm office. If more convenient access from the rear entrance were provided. This access could be obtained by the inclusion of a door in the utility room partition. The living room has been arranged for numerous activities. This arrangement may best be explained by the interior view illustrated on the opposite page.

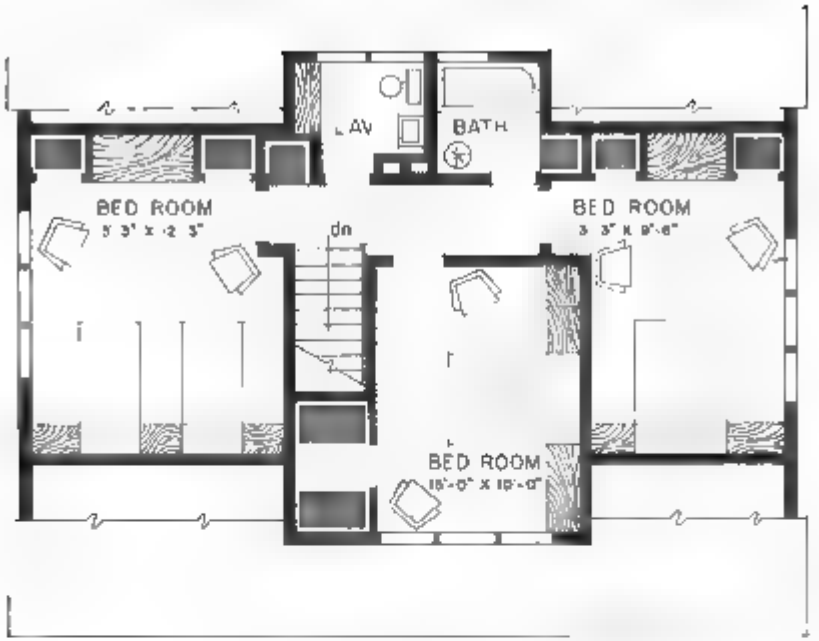
The three bedrooms upstairs are of standard size with clothes storage facilities. The large window areas should make these rooms extremely pleasant.

The separated lavatory and bath give maximum use of washing and toilet facilities. The fixtures being back to back make for economy of piping.

Light and sun are controlled in the den and living room by the sheltering overhang of the roof. The dormer eaves give protection to the glass area in the center bedroom.

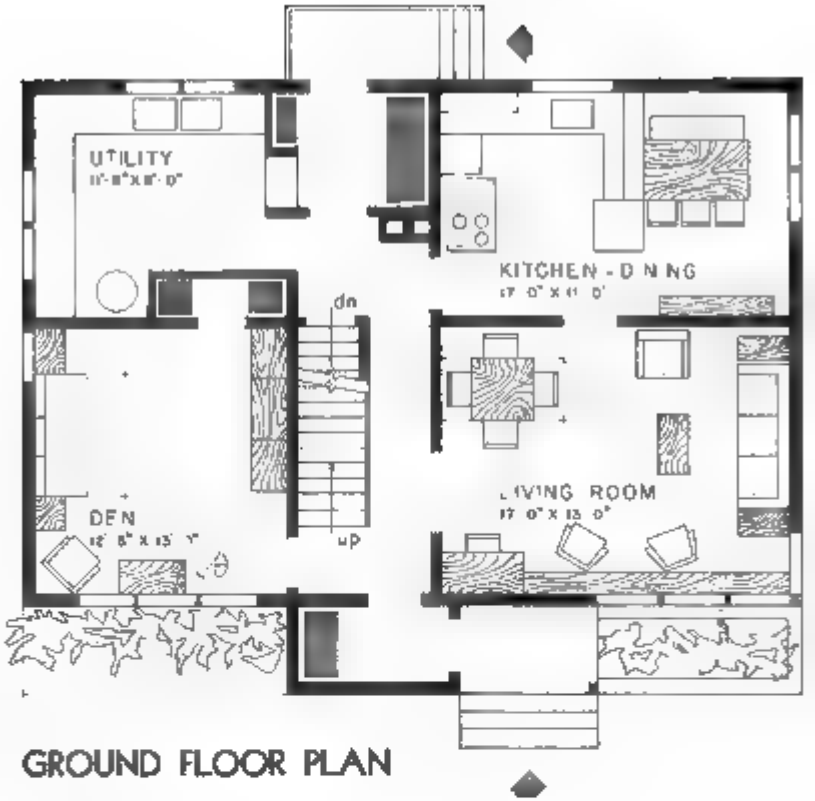
The full basement includes space for fruit and vegetable storage, fuel storage and heating, with plenty of space available for the inclusion of a work bench. An area has been set aside in this particular plan for a cistern.

Overall dimensions: 38' x 26
Ground floor area: 988 sq. ft.



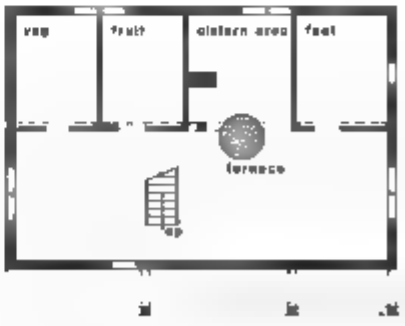
SECOND FLOOR PLAN

INTERIOR VIEW



GROUND FLOOR PLAN

No. 8



BASEMENT

PLAN No. 14

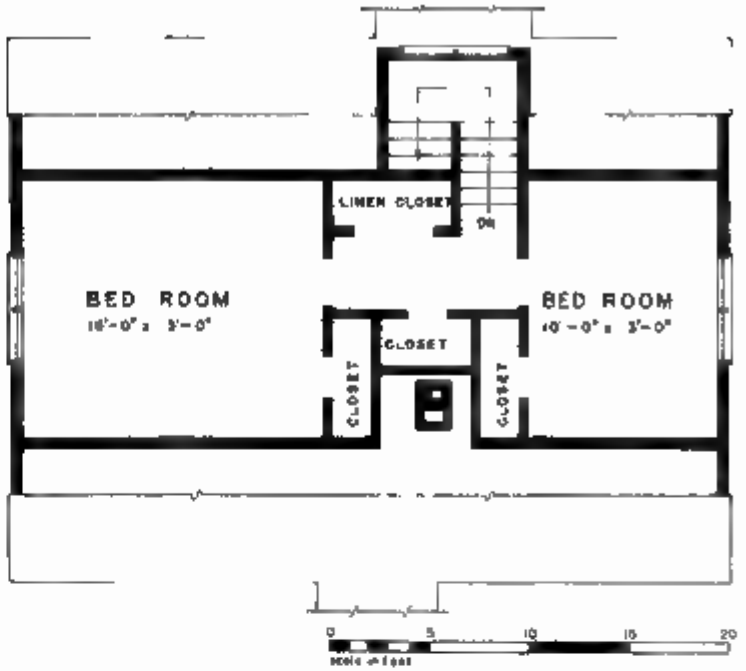
The storey and a half type house has become very popular during the last few years because of its spaciousness and economy. This particular plan provides many of the amenities for farm family living. Desirable features are the bedroom on the main floor, the kitchen-dining combination, and the flexibility of the plan. This flexibility is common to all storey and a half houses, since the second floor can be left unfinished at the time of construction. This leaves a potential two bedroom addition if and when the space is needed for a growing family.

The main floor plan consists of a living room, one bedroom, a bathroom, a utility room and a kitchen-dining room. The rear entry is at grade level and is sheltered by a vestibule which serves also for wood storage. The utility room is large and adequate for the many activities it will serve. The kitchen appliances and counter form an 'L-shape.

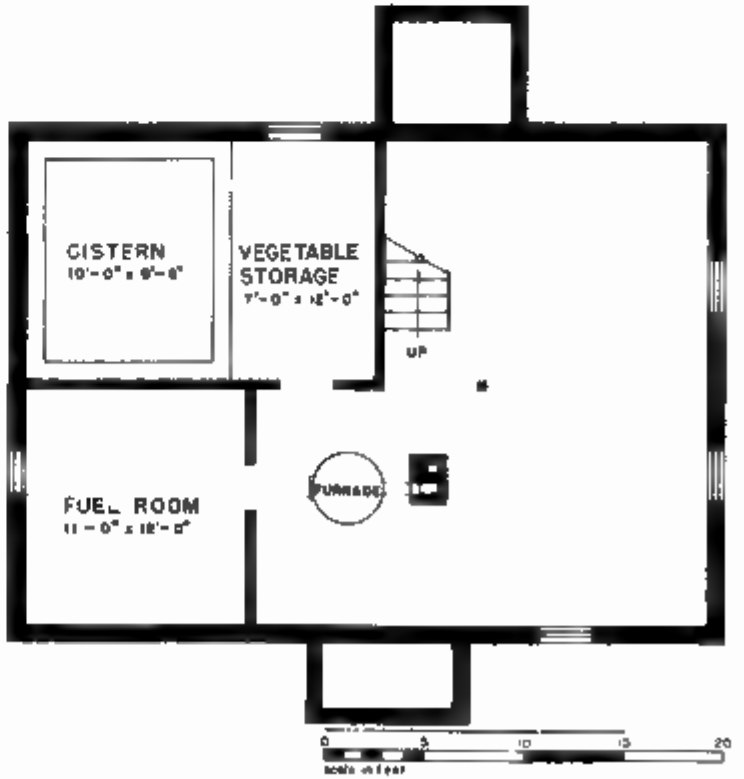
The front vestibule is not enclosed. However a low wall affords some protection against drafts and cold air entering the living room. All bedrooms are large and have adequate clothes storage space. The upstairs plan provides also for two large extra closets, one for linen and one for general storage.

The basement contains fuel and furnace rooms, a cistern and a vegetable storage room. The furnace room is large and can be partitioned off if additional rooms are desired.

Overall dimensions: 26' x 36'
Ground floor area: 936 sq. ft.

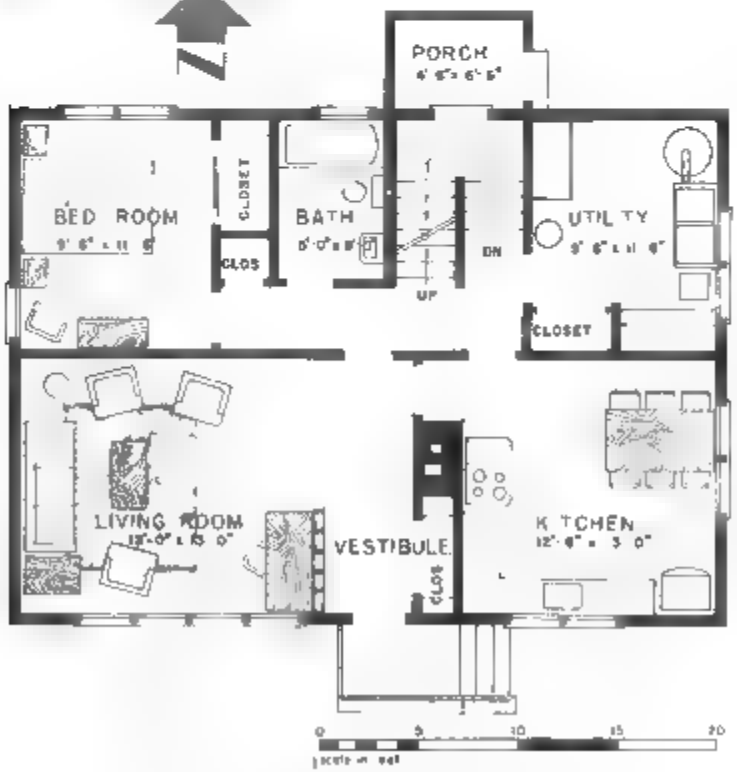


SECOND FLOOR PLAN



BASEMENT PLAN

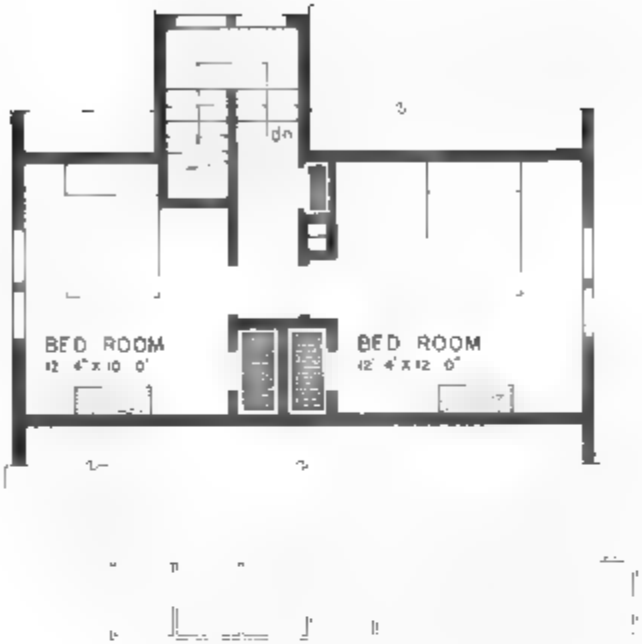
PERSPECTIVE VIEW



MAIN FLOOR PLAN

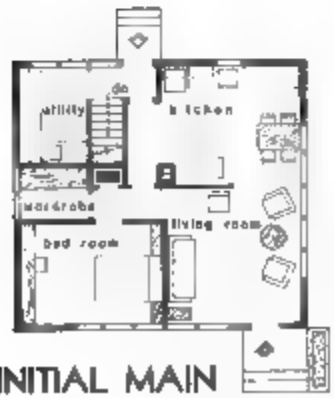
LIVING ROOM

MAIN FLOOR PLAN

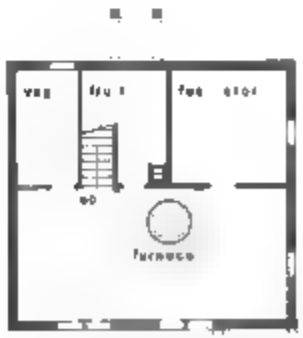


SECOND FLOOR PLAN

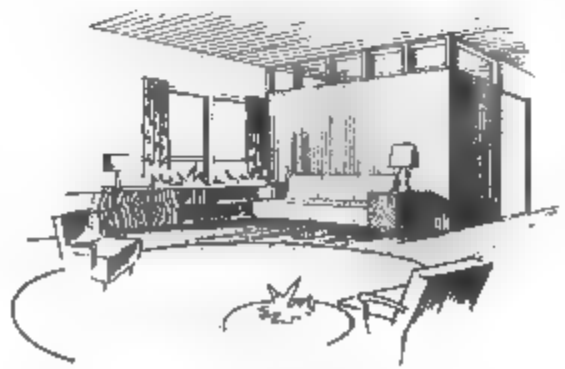
No. 1-B



INITIAL MAIN FLOOR PLAN



BASEMENT



INTERIOR VIEW

PLAN No. 1-B

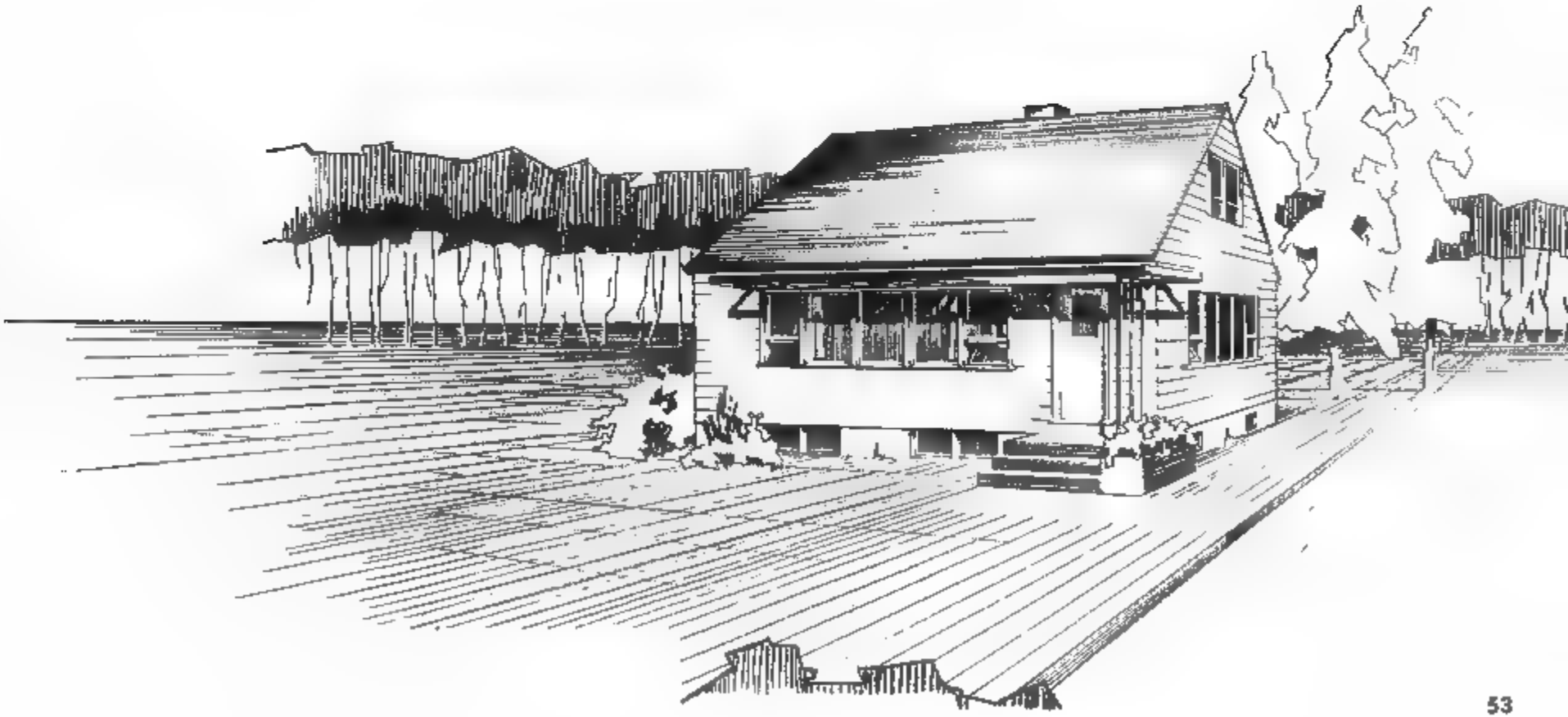
This is the same basic plan as that of farmhouse Plan No. 1A, but it has been developed as a one and one-half storey variation. The kitchen-dining and living areas have the same pleasant relationship.

In the initial plan as shown in the lower left-hand corner of page 52, a large wardrobe has been included. This area can be converted to a bathroom whenever circumstances permit.

The stairway can be reached easily from any part of the house. Two large bedrooms are located upstairs, and both have ample closet space. These rooms need not be finished immediately but can be put to use as soon as requirements make additional space necessary.

Overall dimensions: 28' x 26'

Ground floor area 728 sq. ft.



PLAN No. 16

Here is a two-storey house of compact dimensions planned to give a maximum amount of space and comfort at minimum cost. It features a utility room, kitchen, living room and study or office on the ground floor and four well proportioned bedrooms plus a bathroom on the second floor.

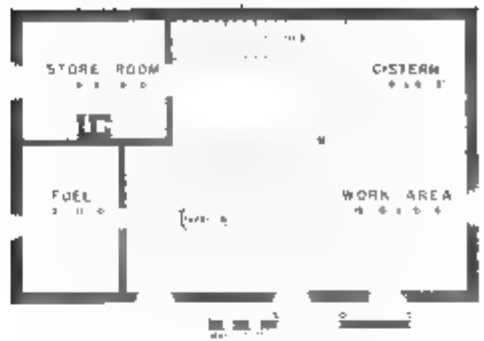
The house has been planned to take full advantage of the southern and eastern exposures which are considered to be the best. The less used areas utility room, bathroom, stairs and hall are all located on the north side of the house. When the house is planned in this way the more important rooms can be provided with larger window areas. The larger amount of glass on the south could make the house extremely hot during the summer. This is avoided by providing a wide roof overhang above the second floor windows and by installing permanent wooden canopies over the ground floor windows.

Both entrances are on the north side of the house. The rear entrance is directly accessible from the farmyard and is protected from the weather by a wood storage wall. The "front" entrance is accessible through a screened porch which may be used during the hot summer months.

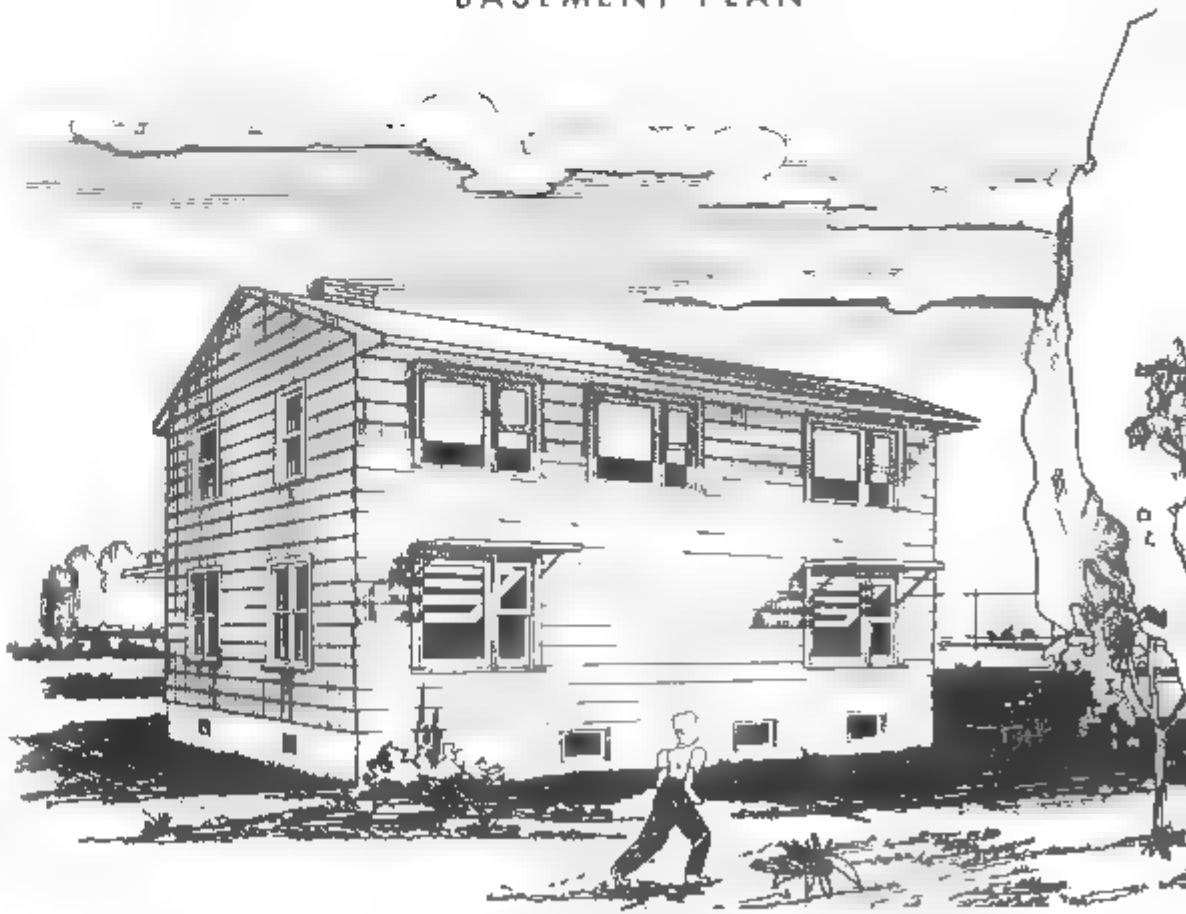
Occasional dining may take place in the living area although the main dining area is in the kitchen.

A study of the plan will reveal large closets located at convenient places in the house. On the upper floor each bedroom is provided with ample closet space and, in addition, there is a large linen closet in the bedroom hall. Downstairs there are two closets with sliding doors, capable of accommodating all the outdoor clothing used by a large family.

Overall dimensions: 22' x 35'
Ground floor area: 830 sq. ft.



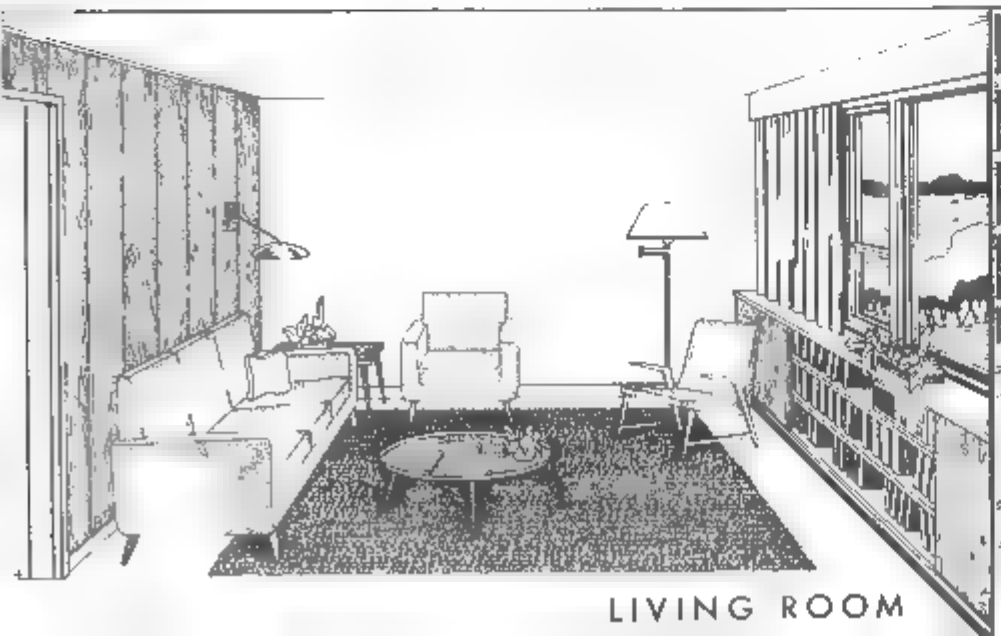
BASEMENT PLAN



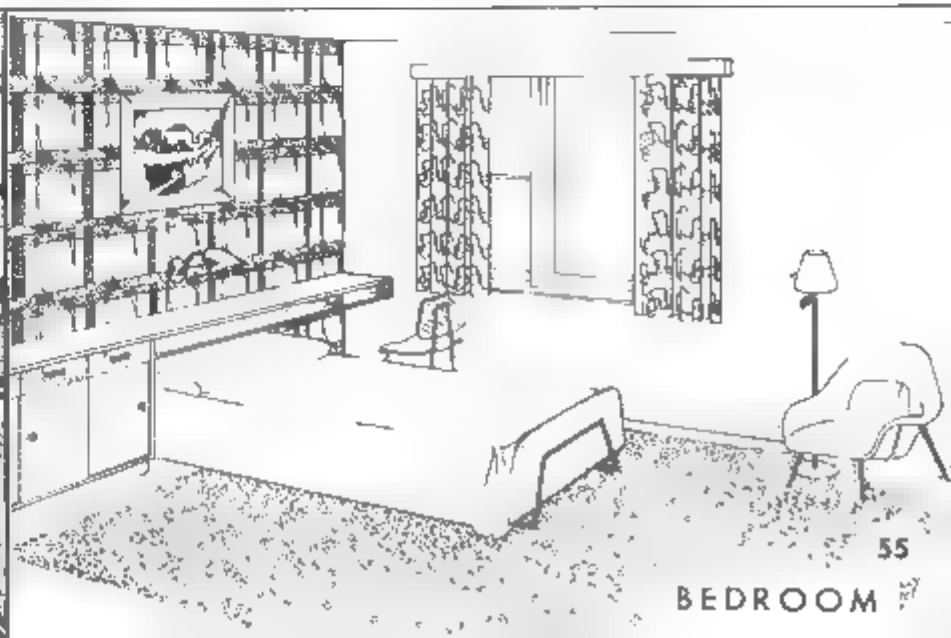
PERSPECTIVE FROM SOUTH WEST

MAIN FLOOR PLAN

SECOND FLOOR PLAN

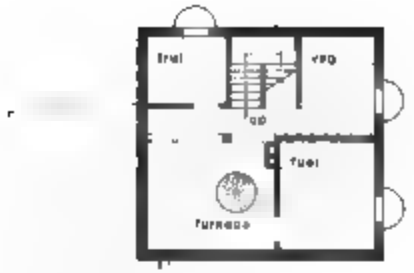


LIVING ROOM



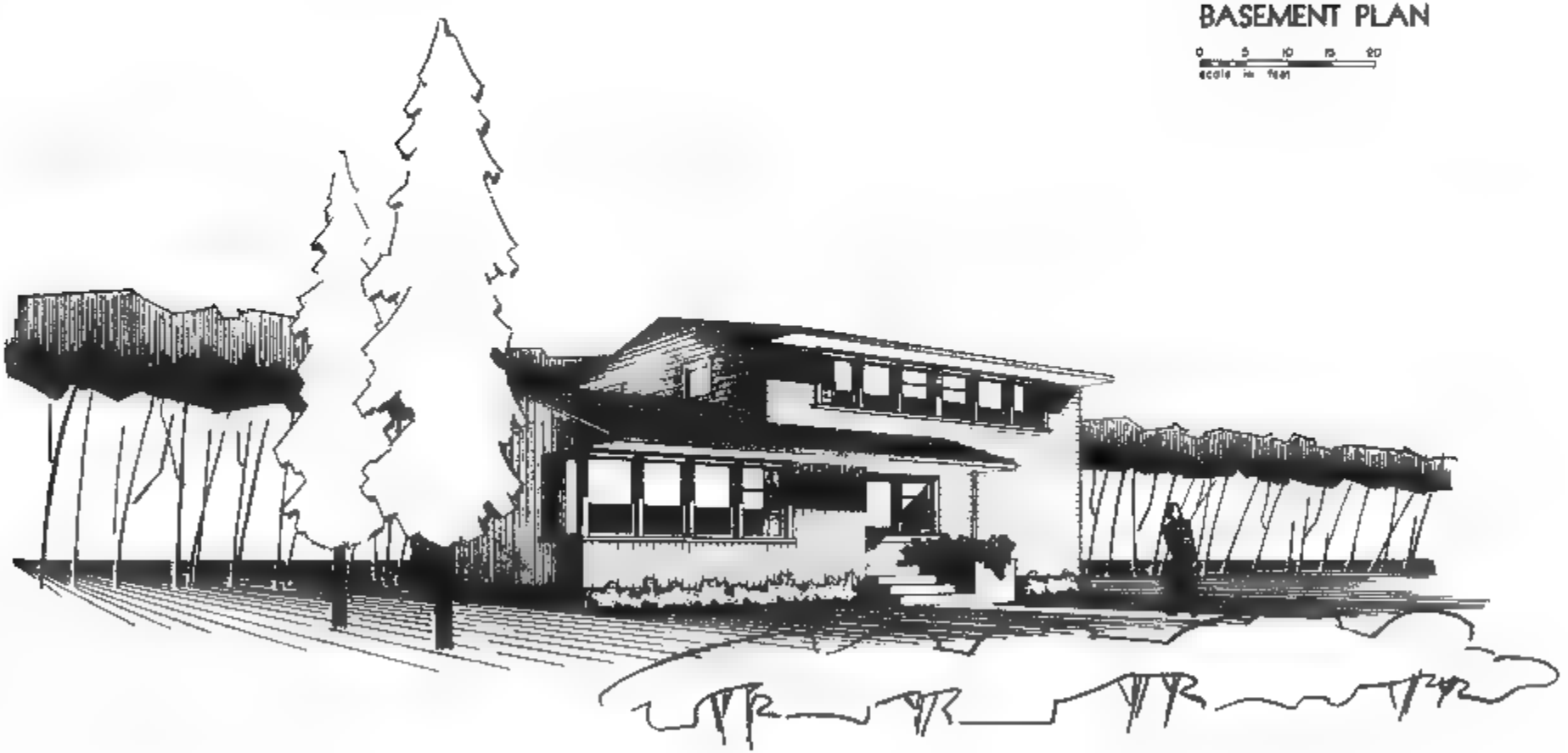
BEDROOM

No. 10



BASEMENT PLAN

0 5 10 15 20
scale in feet



PERSPECTIVE FROM THE SOUTH WEST

PLAN No. 10

[illegible]

Main Floor Plan

[illegible]

[illegible]

[illegible]

[illegible]

Second Floor Plan

[illegible]

[illegible]

Basement

[illegible]

Overall dimensions [illegible]
Ground floor area [illegible]

PLAN No. 4

Main Floor Plan

Points to be noted in favour of this plan are

Both front and rear entrances are well protected from the wind and rain by canopies and vestibules

Ample coat and wood storage areas are conveniently placed in relation to these vestibules

The stairway is located in proximity to both entrances and to all parts of the house

The office or multi-purpose room is near the front entry. It can be used not only for conducting farm business, but also for sleeping or for children's playing. It has been planned as an area which can be used in conjunction with the living room when occasion arises. Draw curtains are suggested to provide privacy when needed.

The utility room is of reasonable size for multi-purpose use and has adequate laundry and storage area. It is well located in relation to basement and kitchen

The kitchen is efficiently designed with working area along the east wall, stove near the chimney, and dinette near the window with pleasant view to the outside

The living room is of spacious proportions for family gatherings and provides for a pleasant arrangement of furniture. The dining area is placed at the east end of the living room.

The room arrangement throughout the house has been developed carefully to take full advantage of the available solar energy during the winter months and to reduce the heat penetration during the summer. The canopy along the south band of windows helps to achieve this, as is clearly shown in the perspective view taken from the southwest

These large window areas would be most effective when double glazing is used. The upper sections of the living room windows are to be fixed, the smaller lower sash to be hinged and in-swinging to provide the required ventilation.

Basement Plan

The full basement under the main portion of the house and the compact plan arrangement provide for satisfactory operation of the gravity heating system. This, of course, is advantageous in areas where electricity is not available and forced air systems cannot be installed. The basement includes fuel storage, vegetable and fruit storage, furnace space and work space.

Overall dimensions 36' x 26'
Ground floor area 847 sq. ft.

Second Floor Plan

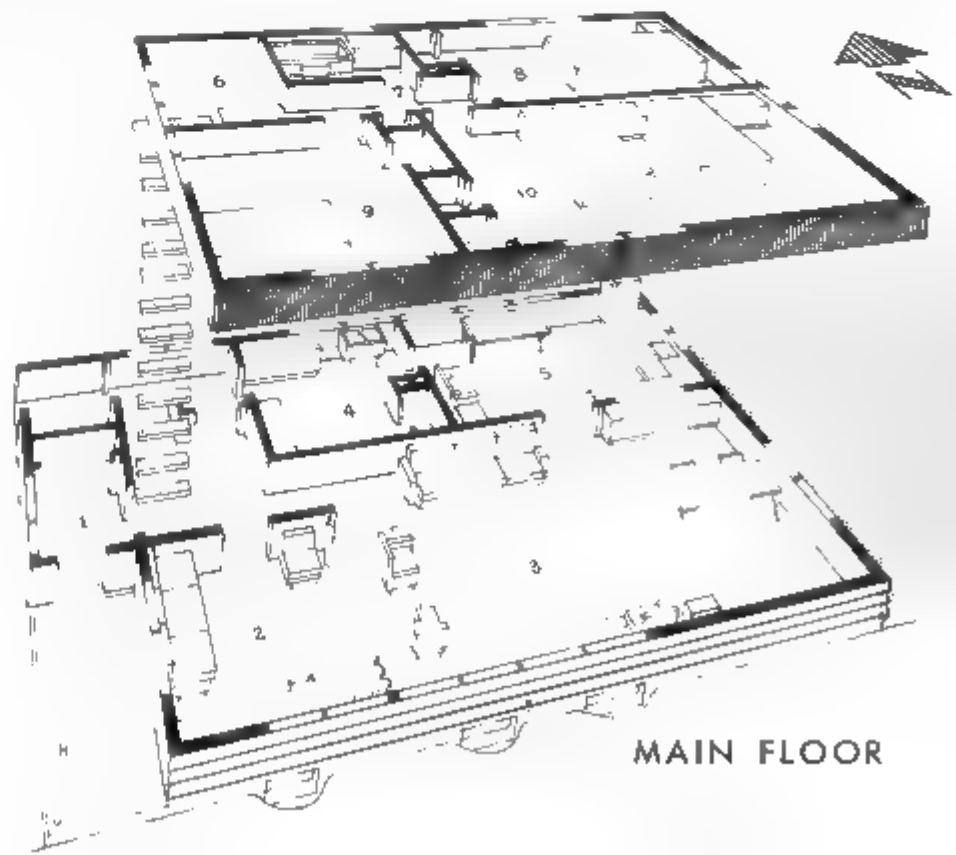
The stairs lead up directly to the second floor hall which provides access to the bath and three bedrooms.

The master bedroom is very large and contains two wardrobe closets. The two bedrooms for the other members of the family also have plenty of room for dressing, studying and private activities. There are wardrobe closets in each. Window arrangement in each bedroom provides for good cross-ventilation when needed.

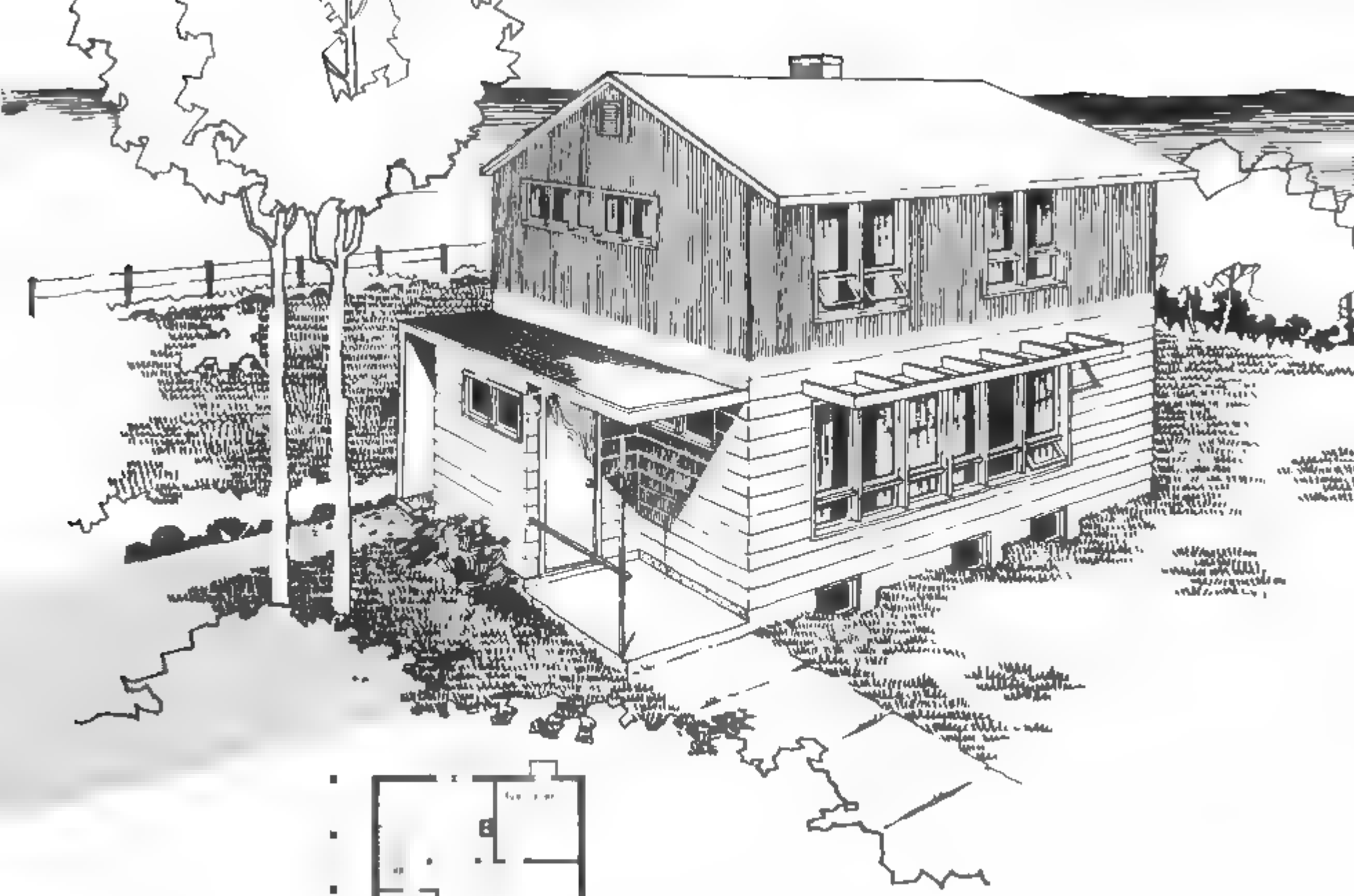
The bathroom is centrally located, near the stairs and equidistant from the three bedrooms. It is a compactly arranged bathroom, including bath, toilet and sink. If desired, one or all of the bath units could be added later when the budget permits.

1 ENTRY
2 OFFICE & STUDY 9'-0" x 9'-0"
3 LIVING – DINING 20'-0" x 13'-0"
4 UTILITY ROOM 9'-0" x 11'-0"
5 KITCHEN 12'-0" x 11'-0"
6 HALL
7 BATH ROOM
8 BEDROOM 11'-6" x 11'-0"
9 BEDROOM 10'-0" x 13'-0"
10 BEDROOM 15'-6" x 13'-0"

SECOND FLOOR

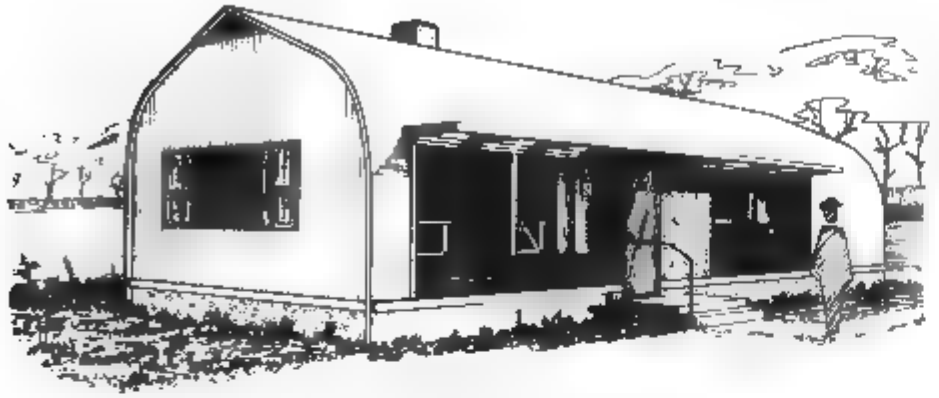


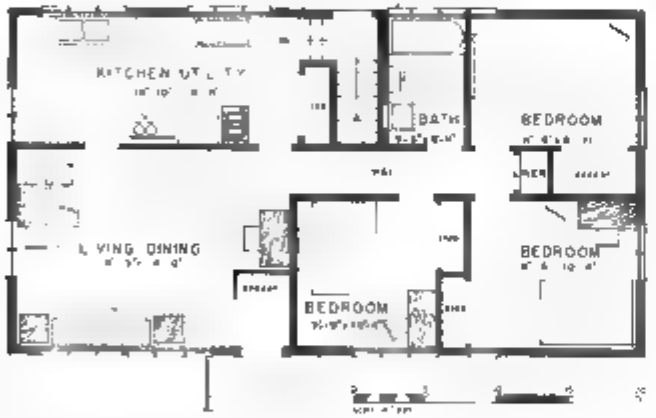
MAIN FLOOR



BASEMENT

SPECIAL PLAN TYPES





WOODEN ARCH

The drawings above illustrate the possibilities of the wooden arch form in residential construction. The plan has most of the desirable features of a design based on frame construction. The only limitation occurs in window placement as window openings must be confined to 2'-0" widths if they are to conform to the spacing of the arches.

No effort has been made to disguise the arch form which is unusual but attractive. Every inch of floor space has been utilized in the design, (see page 63, paragraph 3 sentence 2) the three bedrooms are all spacious, the kitchen-utility arrangement could accommodate all the equipment necessary for laundering, food preparation, cooking, etc. and the living room is designed to allow a variety of furniture arrangement.

RAMMED EARTH

Although it is unlikely that rammed earth or adobe construction will be used to any extent on the prairies, it is mentioned here because a limited number of such houses have been built in the prairie region. Experiments have shown that there is no appreciable saving in building costs when this type of construction is used. There is also no guarantee of the durability of the structure as this will vary with the soil conditions in different regions.

The plan illustrated contains conveniences that are equal to those found in plans designed for other types of construction. The walls consist of a series of rectangular rammed earth sections, between which wooden panels containing the windows and doors are placed and form the non-bearing sections of the walls. The rammed earth sections carry the roof load. (see page 64)

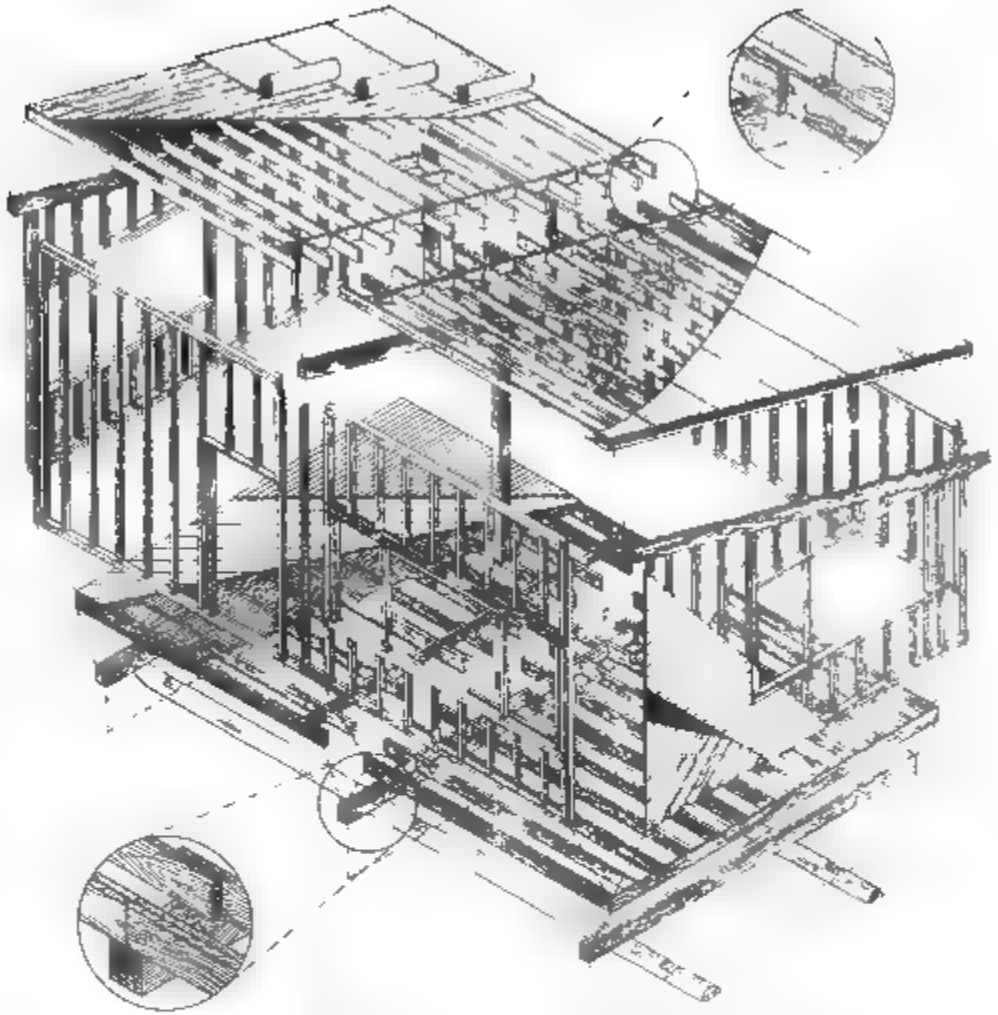
PREFABRICATION

Erection of the wood frame house usua ly involves the entire assembly of the structure on the site In recent years, t has been found that a certain amount of prefabr cation w ll speed up the erection of a house Most of the necessary cutting and nailing is done in factories, where the frame is assembled in large sections after which t is hauled to the site These sections are then erected on the foundation and nailed together to form the walls and roof of the house

On the farm, complete prefabrication is impractical unless a prefabr catron plant is located nearby It s possible how ever, for a farmer to prefabricate some wall sections dur ng the winter and have them ready for spring construction However prefabrication presents many construction prob lems and must be carefu y engineered if t is to be sat sfactory

The scheme on the r ght ind cates one of the poss b lities of prefabr cated construction The unit was designed as a temporary shelter for a small family in a rural commun ty The un t was to be repeated for a dozen or more farm fam lies and, because of the necess ty for speed and economy in construct on, a prefabr cated type of dwe ling was designed The draw ng indicates how the ten structural, prefabricated pane s, which form the walls, floor and roof, relate to each other and how they fit together to form the structural un t. A l the panels are of conventional structura des gn, uti izing diagonal sheath ng for added rigidity

The plans are rectangu ar in shape, with no projections or add tions Interior partitions are kept to a minimum, both for the sake of economy and for the maximum circulat on of air throughout the house, as the kitchen range is the only source of heat



ONE BEDROOM PLAN

TWO BEDROOM PLAN

CONSTRUCTION

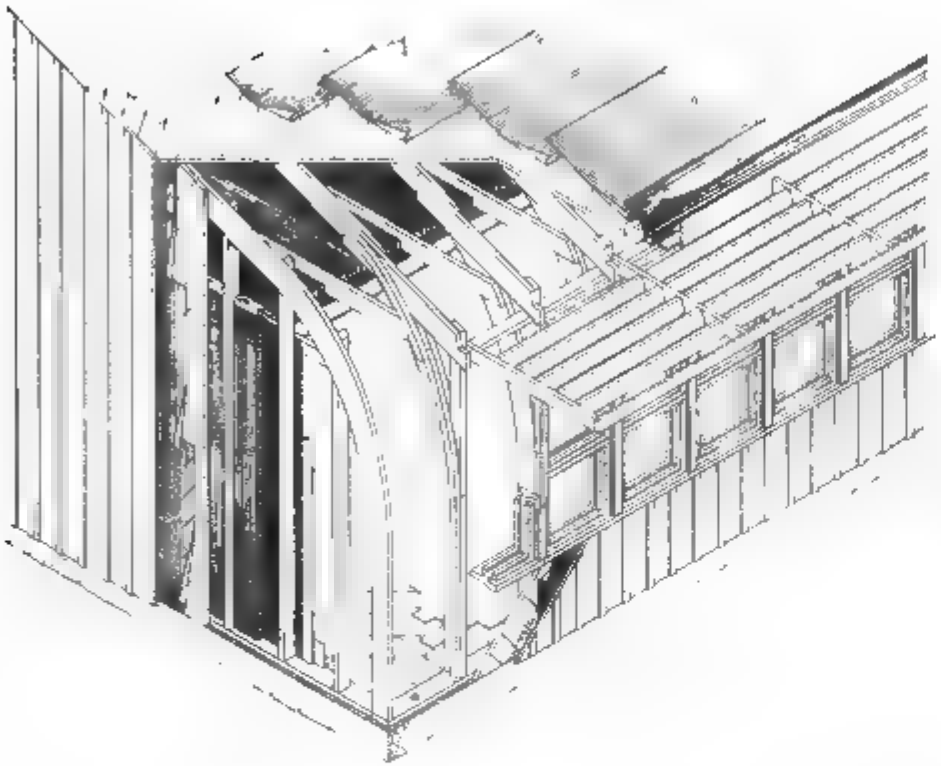
MAIN FACTORS GOVERNING CHOICE OF STRUCTURES

t is important that the home bui der should have some understanding of construction so that he can compare and choose mater als and can dist ngu sh between good and bad structura methods Often a good method of construction or a good materia fa ls because it s misused There is a tendency to economize by using cheaper materials and by om tt ng e ements of good construct on especia ly i these elements w ll not be visible in the completed house st is advisable, therefore, to be aware of the best types of construc on, and the best mater als in order that fa lures in structure or materials may be prevented Such ailures are difficult and expensive to remedy a ter the house is completed

Structural des gn is based upon a know edge of stresses and the r effects, of economical building methods, and of the characteristics of the numerous bui d ng materials which go nto a structure The structure must withstand the forces of wind and snow, it must support the loads imposed by ts own weight and by the furnish ngs and people n t The enc os ng surfaces must protect the vita parts of the structure from decay and insect damage and must resist exposure, moisture and fire

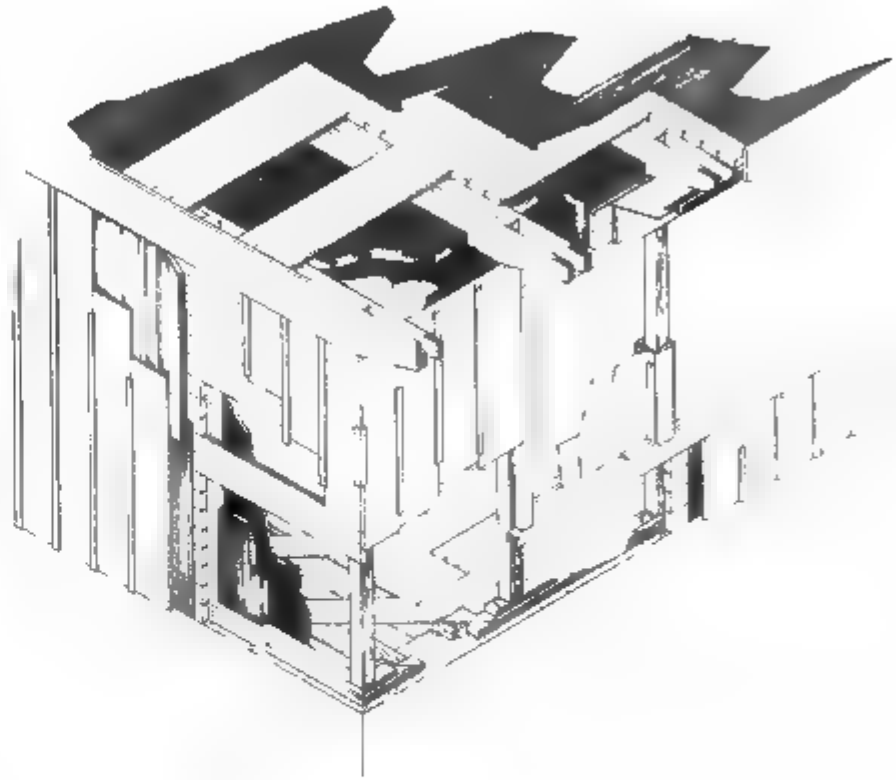
The structure of a house cons sts of a oundat on, a framework or some type of structural shel , ayers of materia to prov de nsu at on and vapor contro addit ona layers of material to enclose or finish the building Together with these there are numerous accessories such as doors windows sta rs ch mneys and fireplaces a o which requ re specia attention and consideration n the following section an attempt has been made to d scuss these prob ems in a c ear and nformative manner and n a language simple enough to enable the layman to benefit from the information presented

SOME COMMON TYPES OF CONSTRUCTION ARE



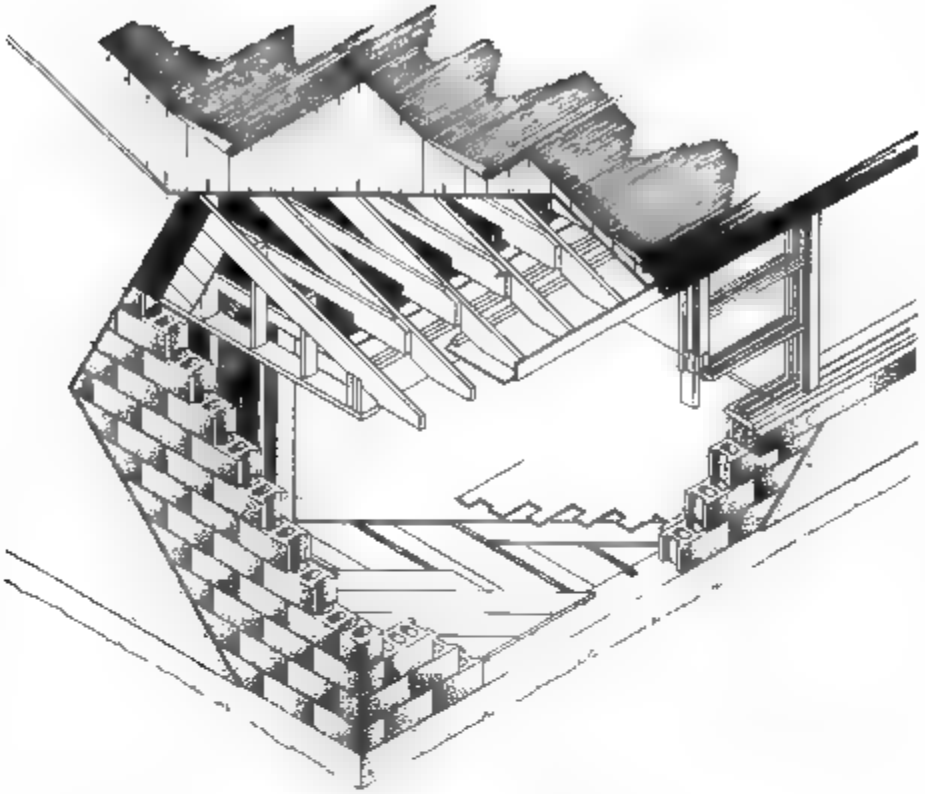
WOODEN ARCH

Timber arches are g ued aminated wooden arches, combining wa l studs and rafters into one unit. Strong wood strips are bonded together w th mo sture resistant glue, under controlled conditions of shape time, temperature and pressure to form permanent r bs of grea strength
The most notable advantages of these arches are the speed w th wh ch they can be erected and the result ng economy of abor
It s difficu t to fit the standard types of sash into the arch shape Specia p ann ng is necessary to uti ze the space close to the exterior side wal s, because in some cases the curved shape of the arch w ll no permit suffic ent head room



HEAVY TIMBER FRAME

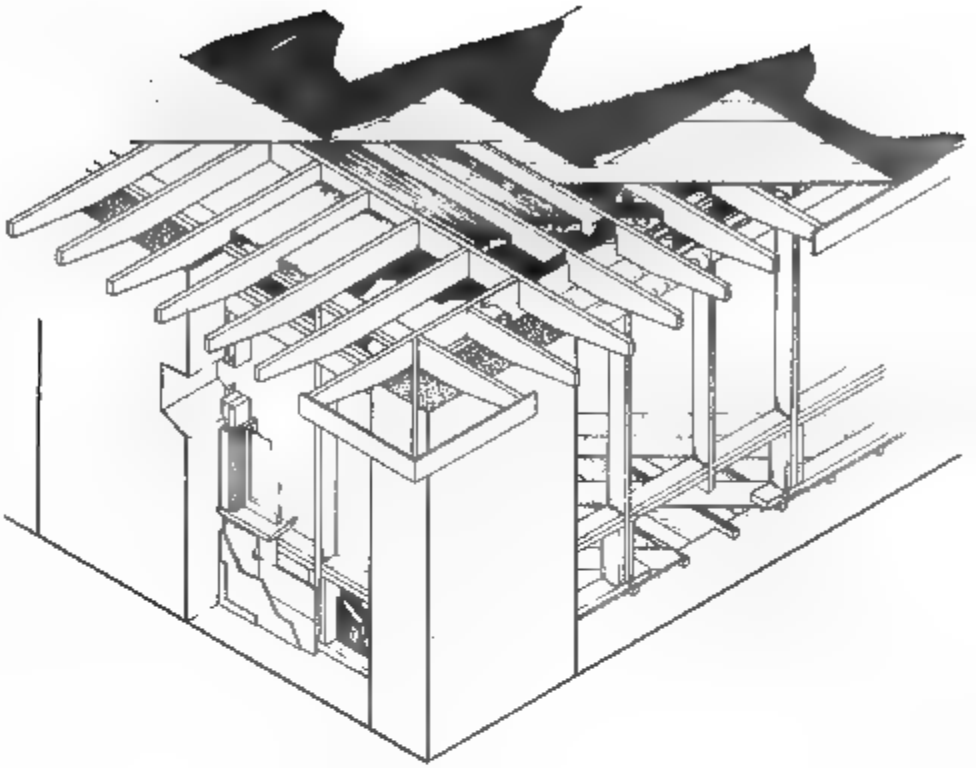
This comb nation of beams and posts is one o the more s mple types of struc tural framing. The beam and post members are sometimes braced diagonal y to provide stabi ity aga nst lateral pressure This type ol framing is seldom used for residential construction yet t has many advantages over the ordinary type of framing The wide spacing of members allows larger window open ngs and is more read ly adapted to wal pane prefabr cat on



MASONRY

When the exterior wa ls are of masonry and the floors and roof are of wood, the construction is generally named according to the exterior wall material used, for examp e, a brick house, a stone house, or a concrete block house In residential work the framing of houses is generally of wood, except for the exter or wa ls. Upon these masonry exterior walls the wood floor jo sts and roof rafters rest Interior bear ng part tions general y are of wood studs Because exterior masonry walls will leak, cavity wall construction which consists of two separate masonry walls with an a r space beween them is used The reason being that only the outside wall will let water in, but not the inside wal Sma l amounts of water wi run down the ins de of the outside shel and evaporate, large amounts may run a t the way to the bottom of the wall and escape to the outside through weep holes

Where a s ngle exterior wa l of masonry is used, an air space must be provided between the wall and the interior finish This principle is illustrated in the above diagram, in which concrete blocks form the exterior wall



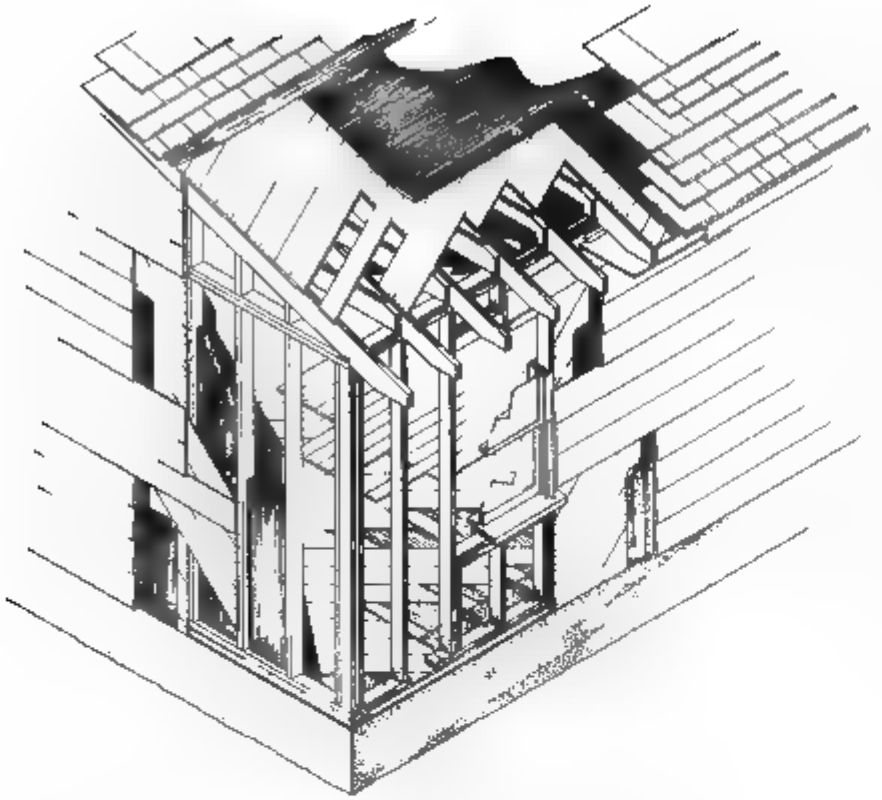
RAMMED EARTH

Rammed earth is restricted to wall construction and is feasible only where favorable cl matic and soil conditions exist, i e , in temperate climates, where no driving rains or winds occur

Suitable soil consists of one part of silty earth with a ow c ay content to three parts of sand, by volume The correct mo sture content is one of the main factors in successfu rammed earth work from 9% to 15% is recommended

The earth s placed in forms which are clamped to the concrete foundat on. Four to five inches of earth and water m xture are placed in the form and firmly tamped. Th s procedure is repeated until the complete wal is formed

Due to the labor involved in making the forms, in setting them up and in ramm ng, the cost of construction is usually as high as frame construction.



FRAME CONSTRUCTION

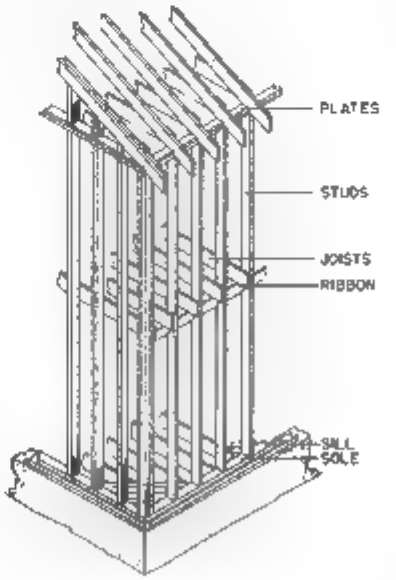
This is the most popular type of construction for dwellings with short spans. Shown are two types of frame construction: balloon framing and western or platform framing.

In balloon framing the studding extends in a single piece from foundation sill to roof plate. The floor joists are side nailed to the studs and are also supported by a ribbon or ledger board let into the studs.

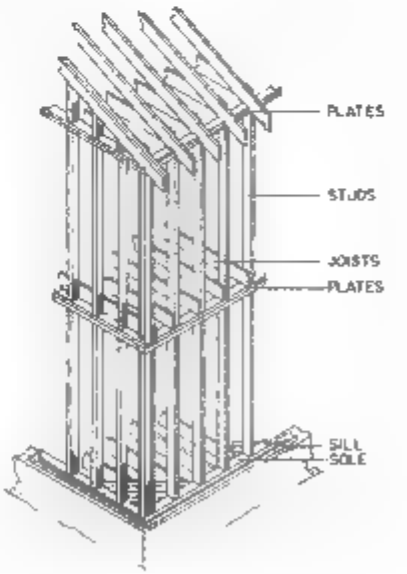
The western framing has independently framed floor platforms. Studs are only one storey in height and they bear on the framing of the storey below. These studs support the floor platforms above them.

The wide use of frame construction has resulted in the standardization of building materials to such an extent that nearly every feature of today's house could be built of factory cut materials. Windows, doors, wallboards and even kitchen cupboards, are factory made to fit into standardized floor plans. This standardization has resulted in an approved sequence which is followed in the construction of a conventional frame dwelling. The step by step processes of cutting, fitting and assembling these parts and pieces of material on the site, together with other operations necessary to produce a complete building, are listed in logical order below:

1. EXCAVATING
2. BUILDING THE FOUNDATION
3. FRAMING
4. SHEATHING
5. PRELIMINARY INSTALLATION OF UTILITIES AND EQUIPMENT
6. INSTALLING MILLWORK
7. EXTERIOR AND INTERIOR FINISHING
8. INSTALLING EQUIPMENT
9. PAINTING AND FINISHING



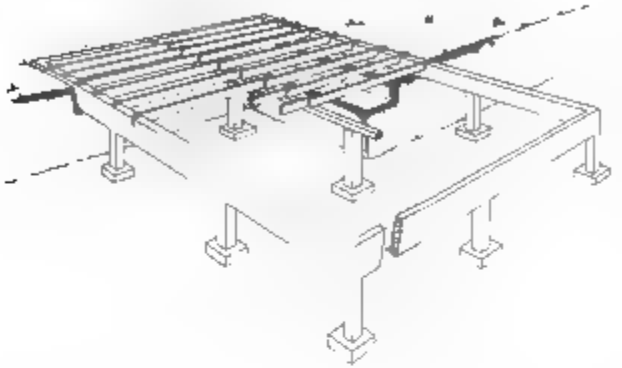
BALLOON FRAME



PLATFORM FRAME

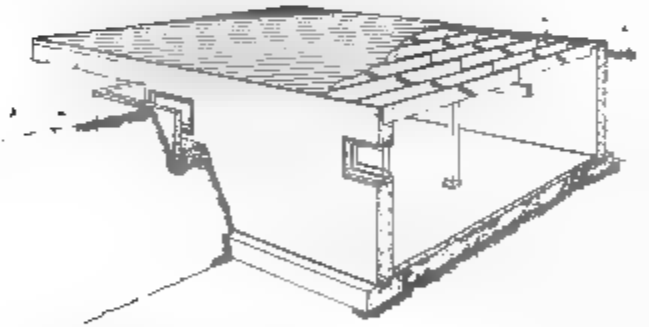
FOUNDATION TYPES AND MATERIALS

BEAM AND POST



This type of foundation is used in basementless houses. The piles are either wooden posts driven down to the bearing stratum or are concrete poured into holes excavated to a depth below the frost level. These piles support the beams which carry the loads from the structure above. A crawl space should be provided under the floor joists to permit repairs to the under flooring. Since the heated area is above the floor in this type of foundation, it becomes necessary to insulate and vapor seal the floor to prevent heat loss and condensation.

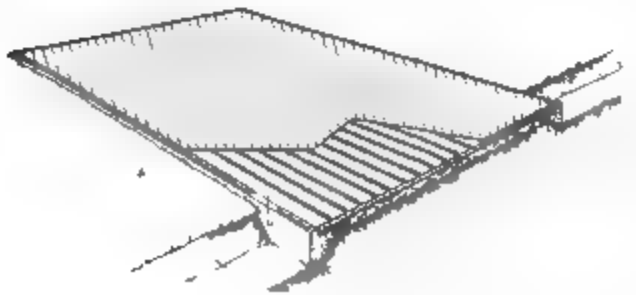
BASEMENT WALL



When a basement is desired in a home, the exterior basement walls and footings must be designed to transfer the weight of the house to the bearing soil and distribute this evenly. The load bearing value of the soil determines the required size of the footings necessary to distribute the load. These footings should run the entire perimeter of the basement wall.

The foundation walls should be thick enough to overcome the side pressure of the earth. If an interior finish is required, then the wall should be made water resistant. Also the water below grade that might accumulate next to the wall should be drained. This is done by placing weeping tile embedded in gravel next to the footing to drain this water away to a sump or some other disposal unit.

BASEMENT SLAB



This type of construction makes use of a concrete slab which acts as one large footing supporting the whole house. The concrete slab should be reinforced to prevent cracking as settling takes place. The slab is laid over a 4" or 6" layer of gravel which aids the drainage of water from under the slab. This precaution is taken in order to prevent damage to the slab from erosion caused by the freezing and thawing of water and by reactions arising from the chemical content of water.

A cement finish, linoleum, asphalt tile or rubber tile may be applied to the surface of the slab or the linoleum asphalt tile and rubber tile may be applied to a wood subfloor on 2" x 2" or 2" x 4" sleepers as illustrated.

Concrete is the most commonly used foundation material. Care must be taken when using concrete to ensure adequate and properly placed reinforcing, proper mix and aggregate, and proper curing after pouring.

Use of wood as a foundation material is limited to piles. If the wooden piles are below permanent water level they will not deteriorate or rot. If the piles are subjected to continual wetting and drying rotting will occur and the members may be sufficiently weakened to cause eventual failure.

Concrete block, brick, and stone are also employed as foundation wall materials. The wall, slab or pier made of these materials will not be as strong as those made of monolithic concrete since the mortar joints weaken the structure. Also is more difficult to prevent water erosion and uneven settling when these materials are used.

The soil upon which the foundation rests is called the bed and it must be able to support the weight of the structure. Clay becomes plastic when wet and must be confined so that it cannot be squeezed or washed out from under the foundations. It is possible to decrease the adverse effects of soil movement by carrying the foundation deeper, by proper drainage and by using extra wide footings to distribute the weight of the structure over a wider area.

Wet soils require special treatment. Drain tile or blind drains around the foundation will keep water away from the bed. Drains placed just above the bottom footings and sloped to conduct water to a lower level some distance from the site, are effective if provided with a suitable outlet which cannot be plugged. Blind drains are used when tile is not available. They are merely trenches 1'-0" to 2'-0" wide filled to 1'-0" to 3'-0" deep with coarse stone gravel, or other material to form a channel through which water will flow. Before the trench is backfilled, bags, straw or brush should be laid on top of the gravel to keep silt out of the spaces.

between the stones. If the site is graded to shed surface run-off away from the buildings, if the ground is sodded or paved and sloped for a distance of about 10'-0" around the structure and if ground water from higher eves is prevented from reaching the structure drier beds will result

There are three sources of moisture to be considered when planning for basement waterproofing. Condensation inside the house is the source which can be most easily checked Rain water or snow run-off above ground should be drained away from the house or it will run into the basement The third source is the underground water from nearby springs, lakes or rivers

Condensation is caused by warm air coming in contact with the cold basement walls and floors. The air condenses into moisture on interior walls and floors and creates dampness. Adequate windows or ventilating grilles will prevent this condensation Surface water can be drained away by laying drain tile beside the footings and sloping the land away from the house Underground water necessitates thorough waterproofing measures. These include applications of waterproof coatings to the outside walls of basements, to basement floors and to concrete floor slabs of basement less houses.

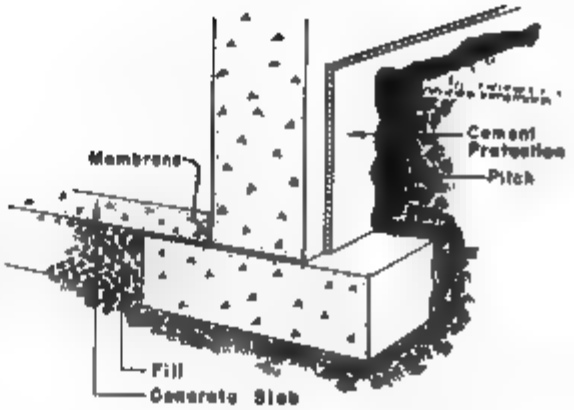
All joints between the basement floor and the walls should be filled with waterproof compound. Cracks on interior basement walls should be repaired and the wall covered with a waterproof cement plaster coat

The principal methods of waterproofing are:

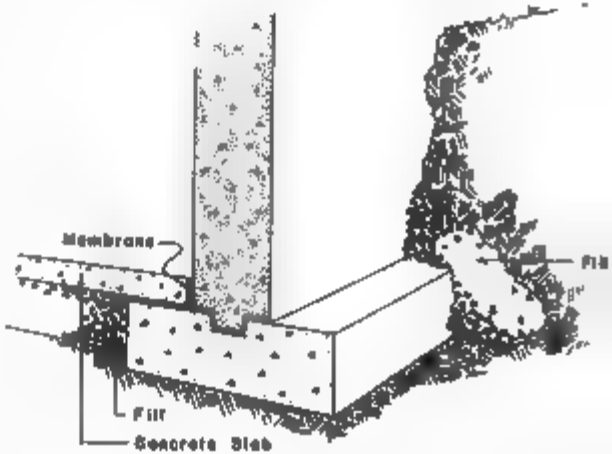
Damp-proofing: The application of plaster coats of portland cement mortar for damp-proofing is a common practice Many failures with cement plaster are due to poor sand, too much water in the mix, poor preparation of the old surface or poor bond between successive coats Commercial bituminous mortars applied cold with a trowel are also used for damp-proofing. These plastic cements are made of asphalt or other bituminous materials, combined with asbestos fiber, mineral filler, and suitable volatile solvents. Mopping the basement wall surface with hot coal-tar pitch or asphalt, or brush coating with a cold prepared bituminous or other water-repellant paint is another common way of damp-proofing

Integral Waterproofing: This type of waterproofing requires a superior concrete mix, with good sand and stone and first class workmanship in mixing, placing and curing If there is a head or pressure of water to be resisted, a 1:2:3 or richer mixture may be necessary The consistency of the concrete is very important A fairly stiff consistency is best, for if the concrete is too wet, the mortar may separate from the stone, leaving air spaces: if it is too dry, the mass may be porous. Other materials may be added to the concrete mixture to act as a void filler This filler may be finely ground clay or sand, hydrated lime or chloride of lime

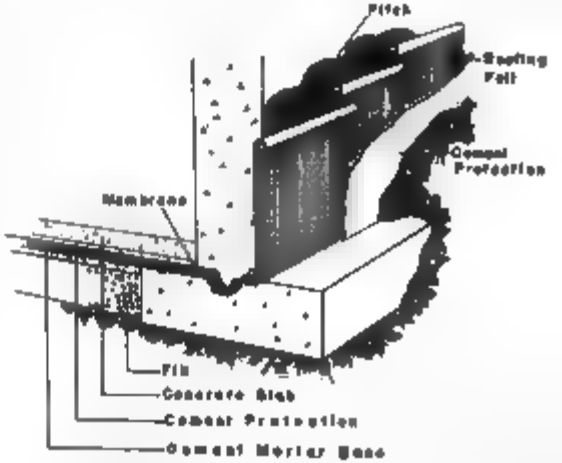
Membrane Waterproofing: This method consists of overlapping layers of a prepared waterproofing fabric over the wall and under the floor and thoroughly coating and bonding every lap with hot asphalt or hot coal-tar pitch After the footing is placed and the bottom of the excavation compacted, a 1" underbed of cement mortar should be evenly spread over the whole area to form a base upon which to lay the floor membrane After completion of the floor membrane, a ¾" protective layer of cement mortar should be spread over the whole floor area, before the floor slab is laid. The membrane should envelope the walls and floor, forming an unbroken covering Thus, each strip of felt, lapped and coated with hot compound, should be laid across the floor and should be continued without break across the footing as illustrated After the basement walls is poured and has set, this membrane is continued up the wall to the desired height A cement wall should then be built to form a protective backing for the wall membrane



DAMP PROOFING



INTEGRAL WATERPROOFING



MEMBRANE WATERPROOFING

CONCRETE

n order to make a good concrete structure, three operations are necessary They are of equal importance and each is dependent upon the other The construction of the formwork is one of these operations, the mix ng of the concrete is another, and the pour ng of the concrete is the third These operations should be carefu ly performed so that the proper result w ll be ach eved

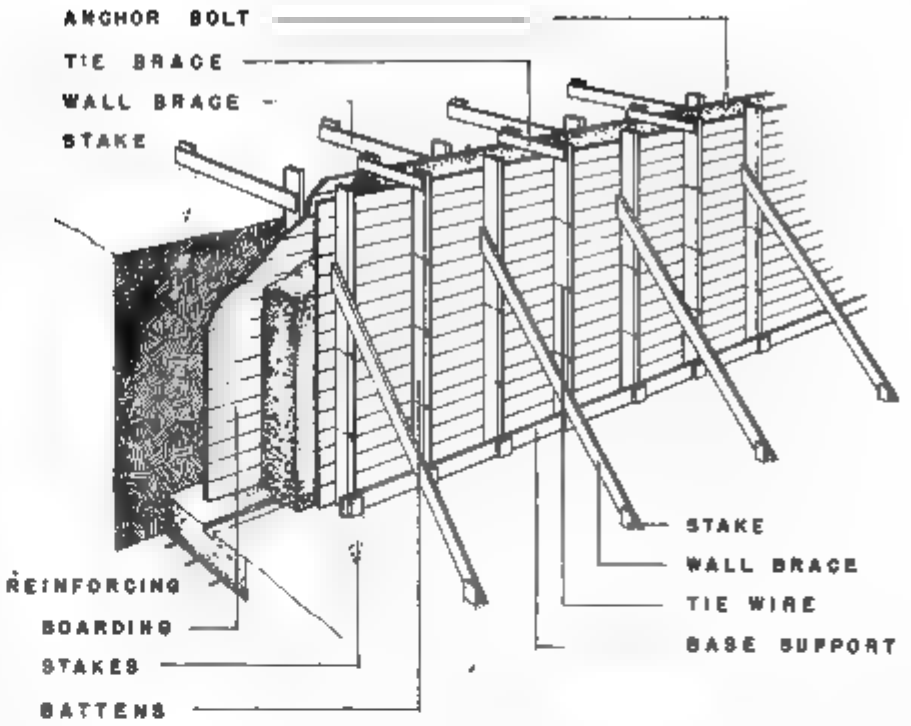
Concrete in the initial stage is a plastic mass and must be contained until it hardens Wood forms made to the desired shape and size, contain the concrete unt l it has attained sufficient strength to susta n itself and the initia loads to wh ch it may be subjected If the concrete is to be placed be ow grade, as is the usual case when pouring a basement wall or floor and if the surrounding earth is fairly well packed and not likely to cave in from an app ied load then the earth may be used as part of the form Th s procedure however is not likely to result n an even surface and therefore the extra trouble of lining the excavation with boards s perhaps the better procedure to fo low

The illustration shows a port on of the formwork requ red for erecting a concrete foundation wall With a certain amount of modification, this system can be applied to any sim lar structure

The first important consideration is the cho ce of mater als for the formwork Partia ly green or unseasoned spruce yel ow pine or fir are sat sfactory woods for formwork More successful work w ll be possible if the boards are surfaced on one side and are free from loose knots and other imperfections Edges of the boards shou d be tongued and grooved or surfaced n order to make a better joint between the boards. Nailing should be sufficient only to hold the form together for as long as is necessary for the concrete to harden

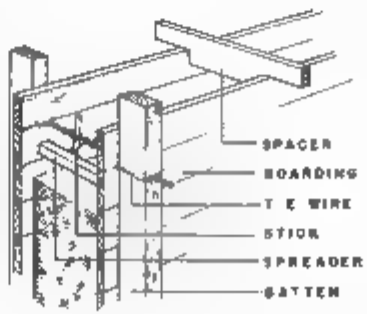
The usual procedure to follow in erecting a basement wall s first to make forms for the footings around the perimeter of the wall and under basement posts, and the chimney The size and placement of the excavat on for the footings may be determined from the blueprint of the plan that is being used The footing should pro ect at least 6" on either side of the wall and be from 10" to 12" deep, providing an adequate base and an ncreased surface for bearing

Usua ly some time elapses between the pouring of the foot ng and the pouring of the foundat on walls. Therefore, someth ng must be done to ensure that the junction at the two surfaces of concrete will have a proper bond. There are two methods in general use, one being the use of metal dowels or bolts which are embedded n the footing in a vertica posit on w th a certain amount of the bolt pro ecting into the foundation wall The other method is one in which a 2" x 4" is embedded in the top of the footing and removed when the foundation wal is poured This forms a "key" which holds the wa l in place on the footing. Before the foundat on wall is poured, the surface of the footing should be cleaned so there wil be no foreign particles present to prevent bond ng

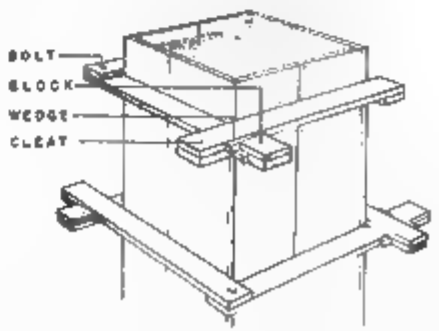


FOUNDATION FORMWORK

BONDING METHODS



SPACERS AND TIES



PIER FORMING

Two forms are necessary to contain the concrete that is to make the foundation wal One is used to form the outside surface of the wall and the other s used to form the ins de surface of the wa l The forms must be very rigid to withstand the great pressure exerted by the concrete and they require adequate brac ng and tying.

As shown in the accompanying diagram face boards are applied horizontally and secured to the ins des of studs or posts, ca led battens. These 2" x 4" battens can ater be used to form the stud walls of the house f they are kept in good condition during and after the erect on of the formwork Narrow boards are the best to use for forming because they are less incl ned to warp The forms should not be constructed too long before the pouring of the concrete because they are iable to work themselves out of alignment or become bowed and bent and w ll not contain the concrete in the proper manner Usual y the umber designated for outs de sheathing is used for the formwork

The battens that are used for the forms are placed on 18" centres and tied together to prevent spreading The t es which are illustrated are made of wire and are wound around the battens and pu led tight by means of sticks which are tw sted through the wire strands Temporary spreaders of wood with the r lengths equal to the desired wa l th ckness, should be used to prevent the wa ls from being drawn together as force is appl ed to the t e wires These spreaders are taken out as the pouring progresses, the pressure of the concrete being sufficient to keep the forms apart After the concrete has set, the wire t es are cut on the outsides of the forms and the forms removed The projecting ends of the wire should then be cut as close to the face of the concrete wal as possible

Forming for piers s simi ar to that for wal s except that the pier has to be contained on all four sides. Th s requires a slightly different arrangement of formwork The boards are placed n a vertical position surround ng and taking shape of the proposed pier, and are held in place by a series of ties as i lustrated in the diagram These ties consist of c eats, bo ts, blocks and wedges The c eats are bo ted at two opposite corners and are t ghtened around the form by means of wedges at the other corners Blocks are nailed on the ends of the c eats to take the wedges, and when the wedges are driven in tightly, the sides of the formwork are held r gidly in place

The weather, the k nd of m x used and size of the project will determine the length of time the formwork must be n p ace A wall of norma he ght and less than 12" thick will require the retention of forms for two to five days If concrete is poured in cold weather, a longer period will be required because of the longer time required for the concrete to se

There are several qualities which concrete wi l possess f it is properly m xed Among these are strength, durability and workabi ity The concrete should be of such a strength as to resist the oad ng to which it may be sub ected, it should be durable enough to withstand exposure to the elements, and t should be workable enough to make it easy to pour into the forms

The strength of the concrete depends largely upon the amounts of water and cement used n the m x. This is usual y referred to as the water cement rat o, and is the most important considerat on The relative amounts of cement and aggregates are important on y in that they affect the workability and cost The design of a concrete mix therefore consists of the se ect on of the water cement ratio which will give the concrete the required strength and the des red resistance to exposure, wh le us ng the most suitable combination of aggregates for a workable and econom cal mix

In very general terms, the function of each of the mater als used in the prepara t on of the concrete m x s as fol ows The water and cement act as the g ng agents for the bulk which is the sand and the gravel Together in the hardened state, they approximate artificial stone The water which s used in the making of the concrete mix should be suitab e for drinking, so that its c eanliness wil be assured Portland cement is most common y used and should conform to standards as aid down by the Portland Cement Associat on. The aggregate which is composed of sand and gravel, shou d consist of inert materia s which are c ean hard strong and durable The par c es sh u d not be coated with clay or dirt since this wou d prevent proper bonding of the paste Shale or stones lam nated w th shale should also be avoided in the aggregate

Regardless of the care taken in proportioning mixing and placing top qual ty concrete can only be obta ned when due considera on of and prov s on for curing are made

The concrete should be deposited into the forms within twenty to thirty minutes after the water is added to the mix Concrete wh ch has set or partia ly hardened should be discarded not tempered with water because its strength w l be reduced To prevent delay forms shou d be inspected before the concrete s poured to see that they are proper y braced, with al chips or loose particles removed Concrete which has set in the form from a prev ous pouring should be wetted to ensure a good bond In depos ting the concrete, care should be taken that the mix is not separated i e , the large partic es in the aggregate shou d not be separated from the sma ler particles as will happen if the concrete is dropped into the forms from too great a height I for some reason one batch of concrete is too sloppy, the succeed ng batches should be of a st ffer consistency unti the excess water s absorbed

Care should be taken to prevent the concrete from drying too qu ckly as premature cracks are ikely to occur n the wa l Protect on from the sun and drying winds is necessary Materia s used for protect ve purpose are canvas, bur ap, boards, layers o moist straw and sand

It s better not to attempt to pour concrete during cold weather but i t is necessary, then specia precautions must be taken The concrete must be kept at a near constant temperature and prevented from freezing Usual methods of keeping the concrete from freezing are the use of protective coverings or the heat ng of the materia s before mixing Manure may be used to prevent freezing but the harmful acids therein w ll produce sta ns and imperfect ons on the face of the concrete

INSULATION

There are numerous advantages to be gained by the use of insulation. Insulation is a money saver. Less heat loss from the home will mean that less fuel is required and also that smaller heating equipment can be used. Insulated houses are cooler in hot weather because the insulation retards the flow of heat from the outside through the walls. It contributes to the comfort of the house because it makes exposed walls warmer and as a result less heat is radiated from the body to the cold wall surfaces. Also the warmer walls cut down the movement of cool air down the wall surfaces, eliminating drafts near the floor, thus there will be a more uniform temperature throughout the house. Walls and ceilings will require less cleaning because dirt and dust will not adhere to warm surfaces as readily as they do to cold surfaces.

Some knowledge of how heat escapes from the house or enters it is helpful in understanding the principles of insulation. Heat is transferred through a wall in three ways: by conduction through the building materials, by convection in air currents, and by radiation which passes through the wall in the form of heat rays.

Heat transmission by conduction can be reduced by incorporating in the wall and ceilings materials which are poor heat conductors such as rock wool, vermiculite, cork, sawdust, etc. Loss by convection can be reduced by any method that cuts down the rate of air infiltration through the walls. Tight sheathing, sheathing paper and careful caulking of door and window frames will practically eliminate air infiltration through the walls. Transmission by radiation can be minimized by the use of bright surfaced materials such as metal foils or sheets.

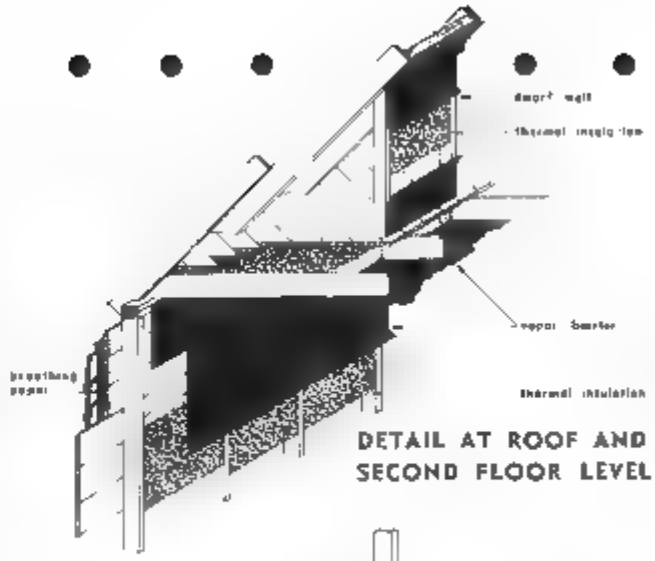
Insulation is manufactured in four different forms, namely rigid, flexible or blanket, loose fill and reflective insulation. The form to use will depend upon circumstances.

Rigid insulation may have some structural value and can be used to advantage in new building or reconstruction. Boards such as those made from sugar cane bagasse, cornstalks or sawmill wastes may be nailed to the studding, floor joists or rafters as sheathing. Rigid insulations are commonly available in 4' 0" widths and lengths of 6' 0", 8' 0", 10' 0" and 12' 0". The usual thicknesses are ½", ¾", 1" and 2". Other dimensions may be obtained. The boards may be purchased with edges cut square, beveled, shiplapped or tongued and grooved.

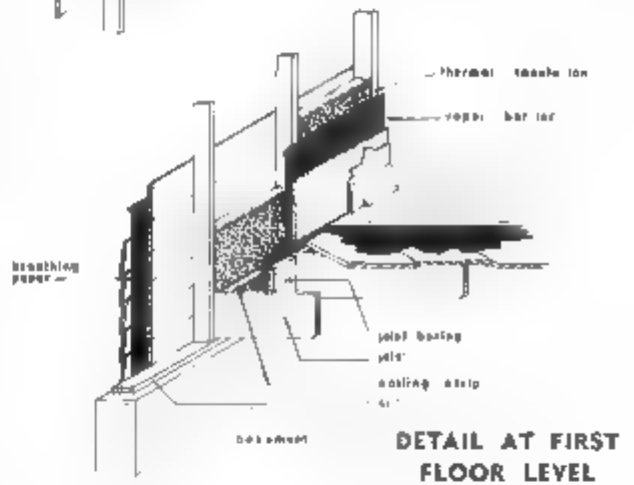
Flexible insulation is made of loosely matted fibers usually covered on one or both sides with paper, thus forming a blanket or quilt. The insulating material may be vegetable fiber, hair, glass or mineral wool. They have no structural value, hence are used only for their insulating properties. They are made in widths suitable for applying to ordinary spaces between studs, joists and rafters and in lengths ranging up to 100' 0".

Loose fill insulation may be almost any of the common insulating materials such as rock and mineral wool, sawdust, planer shavings, flaked gypsum, expanded mica or vermiculite, furnace slag and granulated cork. Loose fill insulation is sold in bags and may be poured into wall spaces and between the joists in ceilings. Fibrous materials may be blown into these spaces by a special blower. Blowing insulating material into walls is a convenient method of installing it in old houses because it is necessary to remove only a part of the siding.

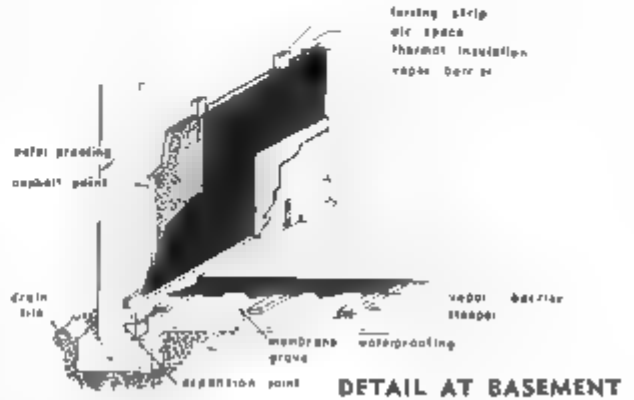
Reflective insulation effectively reduces heat transmission by radiation. Aluminum foil mounted on paper is one of the most common materials used for this purpose. Glossy white painted surfaces are also excellent reflectors. When using reflective insulation other insulating materials must be used to reduce the heat loss by conduction or convection. Recent tests and performance checks of reflective insulations have revealed the fact that these materials have a tendency to tarnish, losing their reflective surfaces and, consequently, their effectiveness as insulators.



DETAIL AT ROOF AND SECOND FLOOR LEVEL



DETAIL AT FIRST FLOOR LEVEL



DETAIL AT BASEMENT FLOOR LEVEL

INSTALLATION

The diagrams at the left show how a typical one and one-half storey house may be insulated and how a vapor seal may be installed. A vapor seal is required wherever insulation is used. The insulation prevents heat loss through walls and the vapor seal prevents condensation from occuring in walls that divide areas of different temperatures. Insulation is applied between studs and joists close to the inside wall finish. The vapor seal is always applied between the insulation and the inside finish and should be as continuous as possible to form a seal.

If the second storey is not used for living quarters the insulation and vapor seal are applied between the ceiling joists. When the second storey contains living quarters the insulation and vapor seal follow the inside surfaces of the rooms as shown.

Insulation and vapor seal are not required between the first storey and basement because these adjacent areas are of similar temperature.

Basement areas may be insulated as shown. The space between the basement wall and the insulation should be vented to allow the escape of moisture that might accumulate by seepage or by penetrating holes in the vapor barrier.

If wood flooring is to be nailed to sleepers on the basement floor a vapor seal should be installed as shown to prevent condensation. The space between the concrete floor and the vapor seal should be vented to allow accumulated moisture to escape.

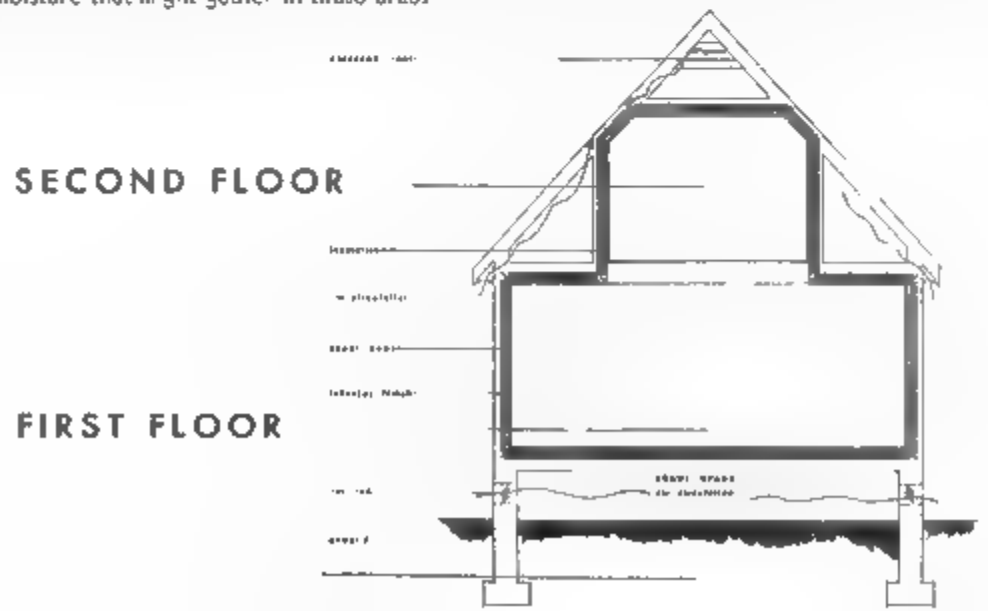
Condensation, between the first floor and the crawl space below, can be prevented if a vapor barrier and ventilation are provided as shown in the diagram to the right. This sketch also illustrates in general where insulation and vapor seal should be installed.

CONDENSATION CONTROL

The temperature of the air determines its water vapor capacity; the warmer the air, the more water vapor it can hold, the colder it is the less it can hold. Moisture forms on the inside of windows in cold weather because the warm air of the house is cooled when it comes in contact with the glass and some of the vapor in it condenses into liquid form. The same situation may be caused by air passing through exterior walls; the warm air of the house passes outward through the wall, becomes cooled when it reaches the inside face of the outer wall covering and loses part of its moisture. This may cause water to accumulate in the wall resulting in damage to the insulation, interior finish, and even the house frame. In order to prevent this, the walls and ceilings and sometimes the floor must be constructed in such a way that water vapor within the house cannot penetrate beyond the interior finish. This may be accomplished by the installation on the inner side of the wall of a film or layer of material which has a high degree of resistance to the passage of water vapor. This film or layer of material is called a vapor barrier. A number of satisfactory materials are available including asphalt impregnated and coated papers with a glossy or bright finish. Other good vapor barriers are: duplex papers composed of two sheets of kraft paper with an asphalt layer between; aluminum foil mounted on a paper support, and aluminum paint, oil paint or rubber base paint in several coats for a smooth glossy finish.

Another preventive measure which can be taken against water condensation in the walls is the use of an outside building paper which is readily permeable. This will allow water vapor which has entered the wall to pass more readily to the outside atmosphere. This building paper should be reasonably effective against wind and wind-driven rain or snow.

Ventilation of the outside wall cavity is desirable and ventilation of attic spaces is essential to carry off any moisture that might gather in these areas.

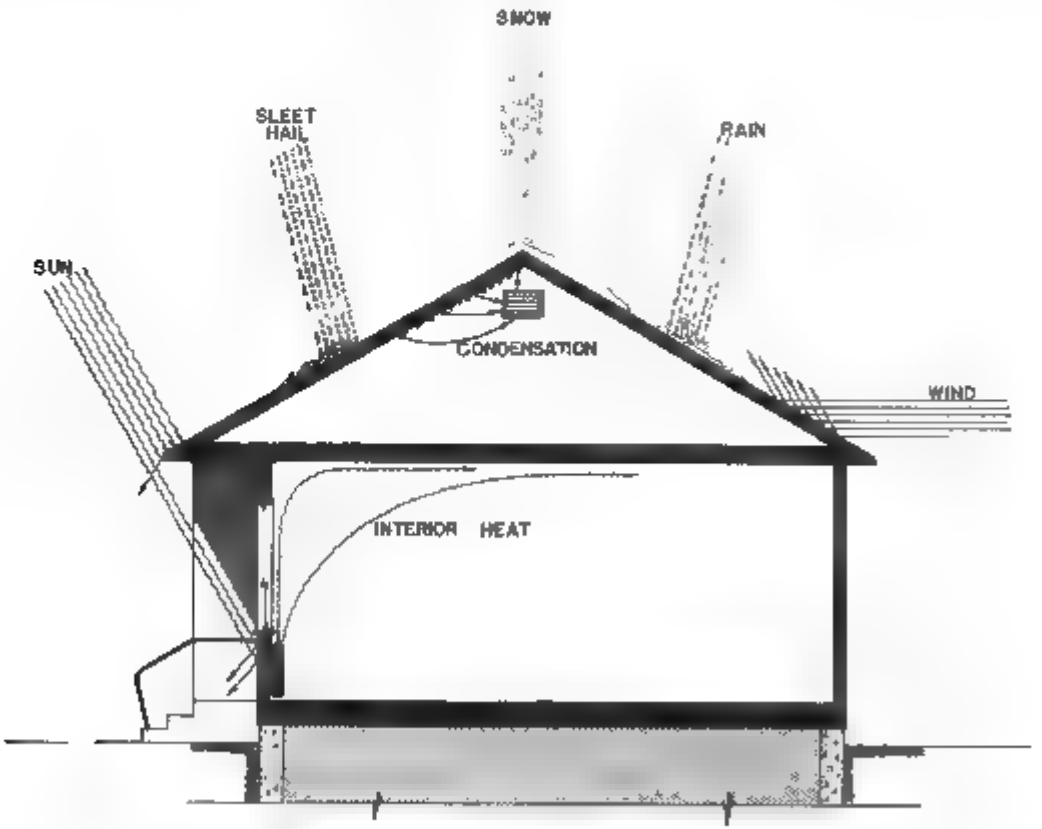


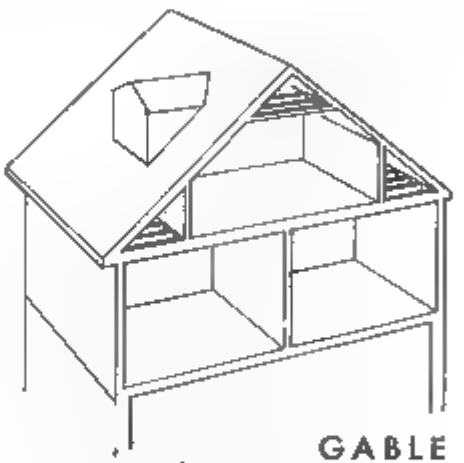
ROOFS

The obvious function of a roof is to provide protection from the effects of wind, rain, hail, sleet, snow and sun. Not so obvious are its functions of retaining interior atmospheric conditions and contributing to the appearance of the house

The choice of a particular roof form or shape is usually a matter of personal preference This choice may be influenced by availability of materials and workmanship, economy of structure, conformity to regional types of architecture and restrictions of local building codes

Roof types may be identified by the pitch and direction of their planes. There are three types of high pitched roofs: gable, gambrel and hipped. The three types of low pitched roofs are: flat, shed, and butterfly For variety or functional requirements it is possible to use combinations of two or more of the above roof types on one building.





GABLE

GAMBREL

The gable roof is usually the simplest to frame and erect. However, if habitable rooms are placed on the second storey level, it may require more complicated framing because of the necessity of placing dormer windows in the roof to introduce natural light and ventilation. High pitched roofs are ideal for use with rectangular or square floor plans but are not suitable for oddly shaped plans because of the difficulties that may be encountered where the roof planes meet. If attic space is to be left unused in a one-storey dwelling additional living space can be provided, without increasing the unit cost, by eliminating the ceiling joists and applying the ceiling finish to the roof rafters.

Because of the form which the gambrel roof takes from the eave to the ridge, it allows more headroom in the second storey or attic. It is composed of two roof planes on each side of the roof. One plane is at a steeper pitch than the other, thus giving an almost vertical wall within the interior area.

The hipped roof is expensive and is not easily adapted to the one and one-half storey home. The attic area will be an odd shape because the roof planes form a pyramid. The rafters for this type of roof require special consideration in cutting and placing, and expert workmanship is necessary.

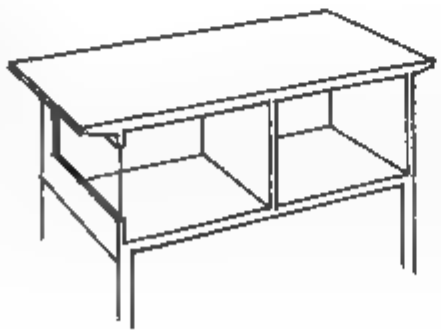
Disadvantages of the high pitched roof are the complicated framing necessary for its construction and the large almost vertical surface which is exposed to wind pressure.

Low pitched roofs are ideal for the rambling type of house plan as the simple framing avoids many of the difficulties encountered when framing a high pitched roof.

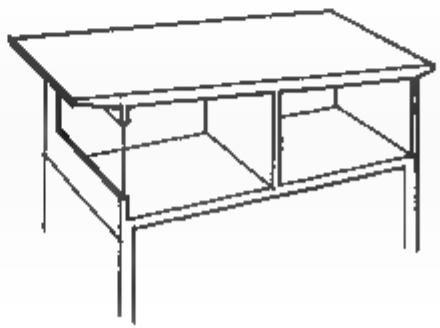
Factors governing the design of flat roofs are the lengths of spans, types and amounts of loadings, and the kind and quality of wood used. Proper drainage is essential as flat roofs have a tendency to retain snow and rain water.

In general, flat roof construction requires heavier and thus more expensive structural members and more expensive roofing materials but this is compensated by the fact that less framing and covering materials are required.

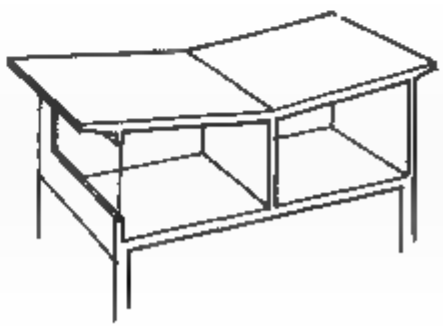
HIPPED



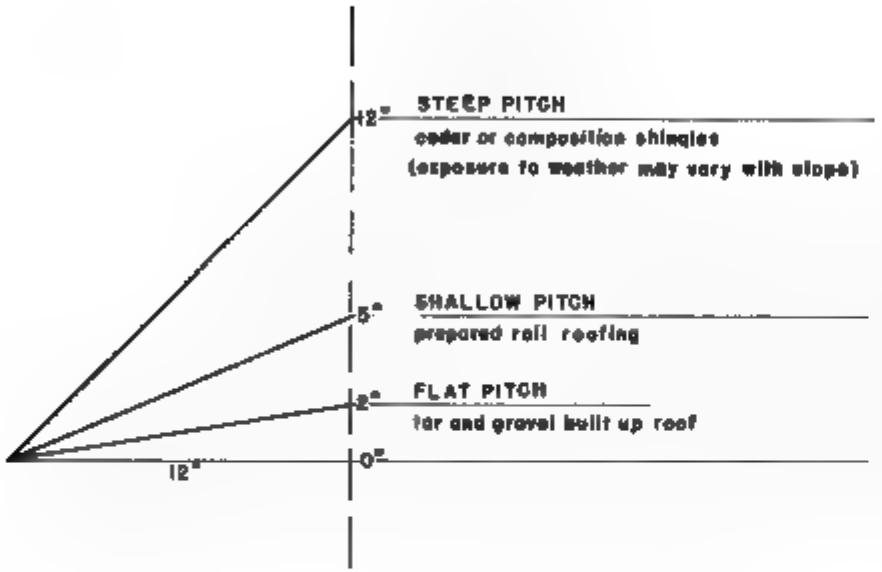
FLAT



SHED



BUTTERFLY



ROOF PITCH DIAGRAM

The design and construction of the roof structure determines the type of roof covering to be used. A high sloping roof should be covered with shingles but built-up roofing must be used on the flat or low pitched roof because driving rains, sleet or wind will lift up the shingles on the lower roof pitch. Types of roofing materials recommended for each division of roof slope are illustrated in the accompanying diagram

The average home builder is generally influenced by initial costs in the choice of a roofing material However, such factors as maintenance costs, suitability of the material chosen and its durability, should be considered.

Shingle roofing is the most popular type of roof covering. The shingles are laid in rows with each succeeding row overlapping the under one to provide a weathertight barrier The joints are staggered for the same reason. The exposure of the shingles to the weather can be much greater on a high pitched roof because it sheds rain water faster and lessens the tendency of the wind to lift the shingles. One disadvantage of shingle roofing is that the whole expanse of roof is only as weathertight as the individual shingle and great care must be exercised in placing and nailing each shingle so that the best results may be obtained.

Shingles are made from many types of materials and are of different sizes and shapes The ones most generally used are illustrated in the accompanying diagrams.

Wood Shingles: Cypress, redwood, cedar and pine are the best types of wood for shingles. The lasting qualities of the shingles depend upon the quality of the wood used, the workmanship, the amount of the shingle exposed to the weather and the pitch of the roof These lasting qualities may be improved by treating the shingles with a preservative The wood shingles provide a roof which, although not fire resistant, is durable, has good insulating qualities and an attractive appearance.

The best quality wood shingles are cut so that the edge of the grain is exposed on the surface of the shingle. Shingles are tapered from a ½" butt, vary from 2½" to 16" in width and are cut in lengths of 16", 18", and 24" To ensure adequate drainage the shingles are doubled at the eaves and projected slightly Eave lines and valleys should have wide metal flashings to protect against water penetration

In general, shingles which are made from heartwood resist decay better than shingles made from sapwood, edge grain shingles are less likely to warp than flat grain shingles, thick butted shingles less than thin butted shingles, and narrow shingles less than wide shingles.

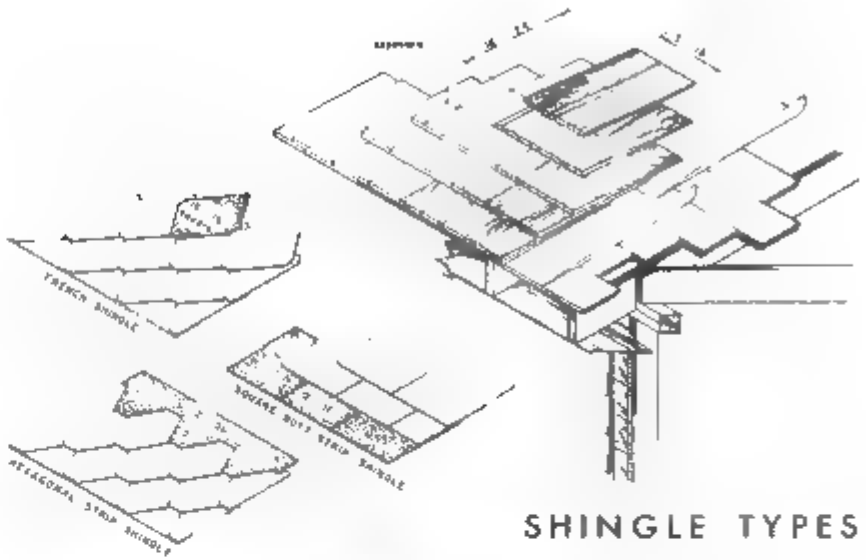
Asphalt Shingles: These consist of fibers such as rag, jute, etc., which are impregnated with tar or asphalt. The weather side is usually covered with mineral granules which give color, texture and sun protection. These shingles may be obtained in both single and multiple units. Certain precautions must be taken when this type of shingle is applied and these precautions are usually covered in the manufacturer's specifications or directions for application.

Asbestos Shingles: These are made from a combination of portland cement and asbestos fibers, with color added to the mixture. They are manufactured in different sizes and shapes. Asbestos shingles will not rot and are fireproof.

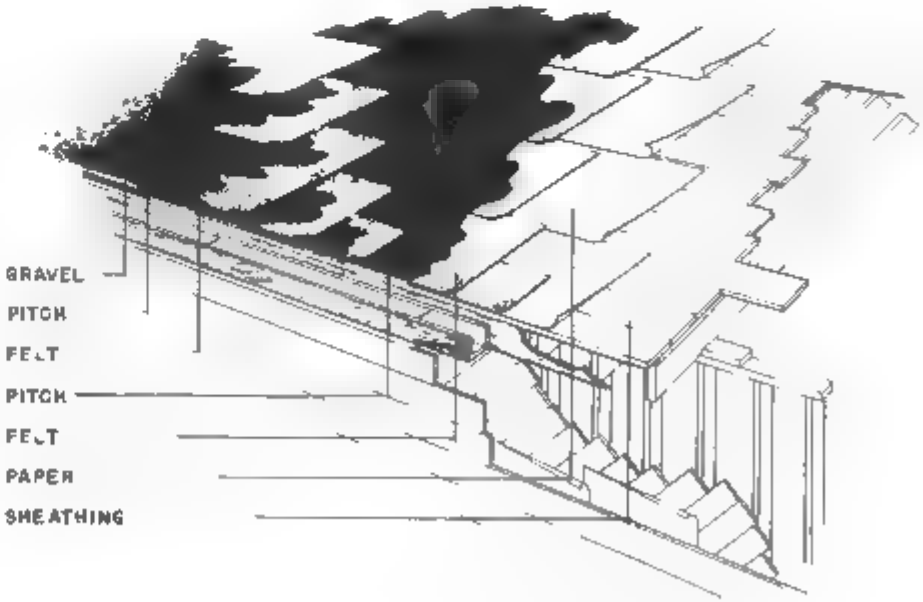
Slate Shingles: These shingles are made from quarry slate which has been split into thin slabs. They are usually laid on asphalt felt over roof sheathing and, because of their weight, require sturdy framing. There are several colors to choose from, including gray, blue, violet, green and black.

Built-up roofing is used on roofs with a low pitch. It is formed by first covering the surface of the roof with a layer or two of roofing felt, then spreading a coat of pitch over the entire roof. On this, three more layers of felt and tar are laid, then coated with pitch in which screened gravel is embedded.

Roll roofing is the easiest and possibly the most economical to apply. Because it does not have the wearing qualities of some of the other roofing materials, maintenance costs are high and the appearance is not as good as that of the shingle or built-up roof.



SHINGLE TYPES



BUILT-UP ROOFING

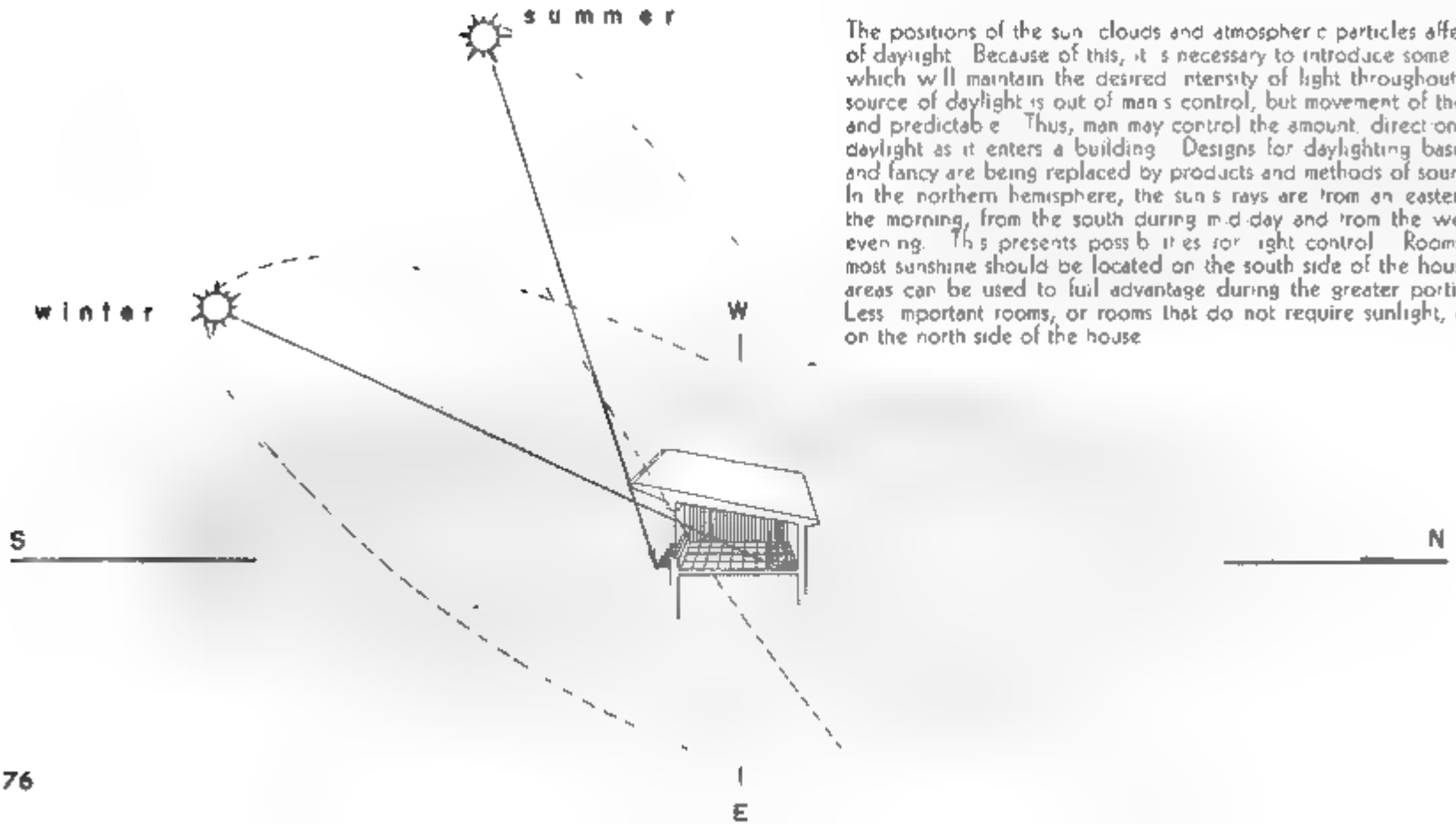
THE WINDOW • • • • A SPECIAL PROBLEM

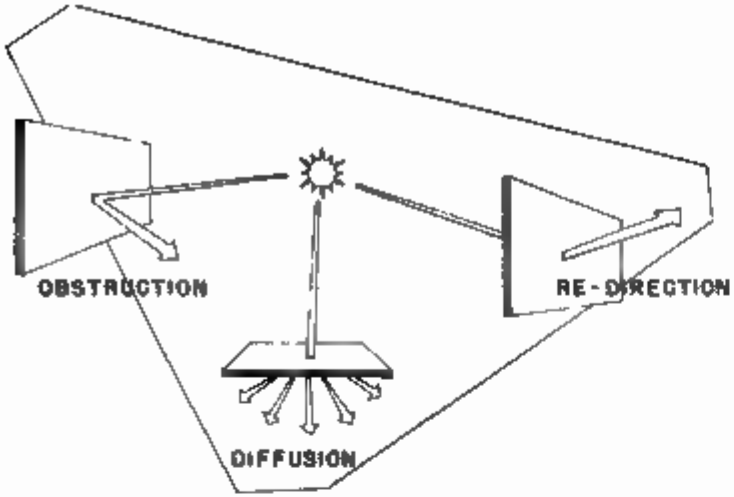
THE FUNCTIONS OF A WINDOW ARE·

TO LET IN REQUIRED NATURAL LIGHT
TO PERMIT AN OUTSIDE VIEW
TO LET IN REQUIRED AIR

LIGHT

The positions of the sun clouds and atmospher c particles affect the ntens ty of daylight Because of this, it s necessary to introduce some type of control which w ll maintain the desired ntensity of light throughout the day The source of daylight is out of man s control, but movement of the sun is regular and predictab e Thus, man may control the amount direct on and qual ty of daylight as it enters a building Designs for daylighting based on intuition and fancy are being replaced by products and methods of sound engineering. In the northern hemisphere, the sun s rays are from an easterly direction in the morning, from the south during m d day and from the west in the early even ng Th s presents poss b l t es for ight control Rooms requiring the most sunshine should be located on the south side of the house, where glass areas can be used to full advantage during the greater portion of the day Less important rooms, or rooms that do not require sunlight, can be located on the north side of the house





METHODS OF CONTROL

Other methods wh ch man may use for controls are

1 Obstruction
2 Re-direction
3 Diffusion

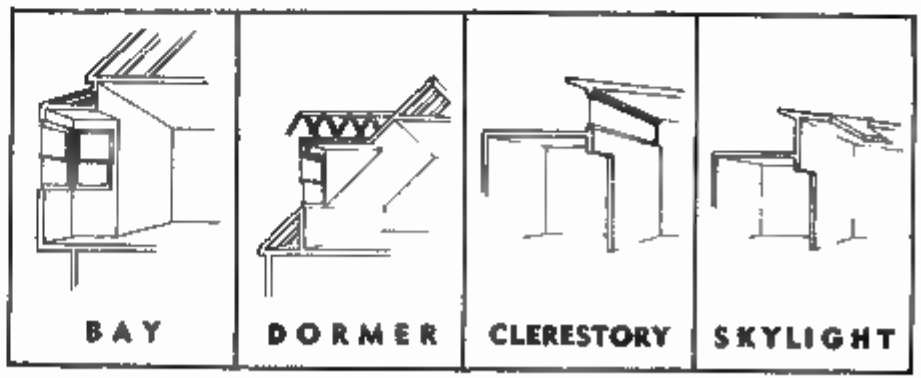
Dayl ght may be obstructed by using an opaque material or by using co ored glass which will subtract some of the light rays.
Re-direction of light may be accomplished by using mirror reflectors or prism glass.

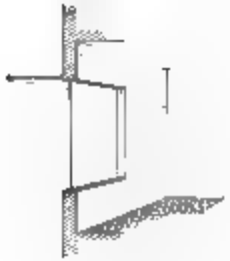
Diffusion may be accompl shed by the use of translucent g ass which breaks the constant d rection of the rays and scatters or d ffuses them over the surface It is possible to control the amount of daylight entering a building by the shape, position or orientation of the opening By placing the head of the w ndow close to the ceiling, the maximum poss ble penetration of daylight will resu t. A high narrow w ndow will al ow light to penetrate a greater distance than a wide window of similar area, but if a wide horizontal space is to be lighted, the wide window will be more useful

The bay and oriel type windows provide strong illumination loca ly but they are no more effective in ight ng the interior of a room than are windows located in straight walls. Although they may make a room seem larger in area, they create areas that are awkward to furnish

Dormer windows are usefu for introduc ng light into attic or second storey spaces which have no vertical outside wal surfaces The lighting is poor, however, because so much of the light merely illuminates the narrow sides of the dormers. Combining two or three windows into one wide dormer improves this situation considerably

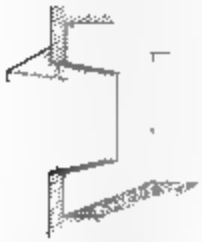
C erestory windows or skylights are generally employed when it is necessary to light an interior room which has no outside wa l surfaces. Skylights create problems in roof flashing. They are difficult to keep clean, both outside and inside The clerestory windows are also difficult to keep clean, because of their height. Only fixed sash should be used in skylights



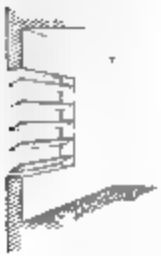


OBSCURE GLASS CANOPY

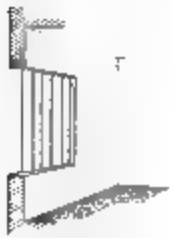
LOUVERED CANOPY



AWNING



HORIZONTAL LOUVRES



VERTICAL LOUVRES

Other types of control which are placed near or on the w ndow are exterior sunshades and ouvers Generally, they are used on the south or west wal s When used on the south wal their purpose is to exclude direct sun rays during summer months and to allow them to penetrate during the winter months when direct rays are desirable In the ate afternoon, when the sun is shining from the west, it produces a l ght ray which is nearly pare le to the earth's surface The only effect ve control of this l ght is to block it off ent rely by means of vertical or horizontal s ats or by the use of obscure glass Shutters are very effective for most types of controls because they can be made to keep out sun and rain wh le al owing air to c rculate

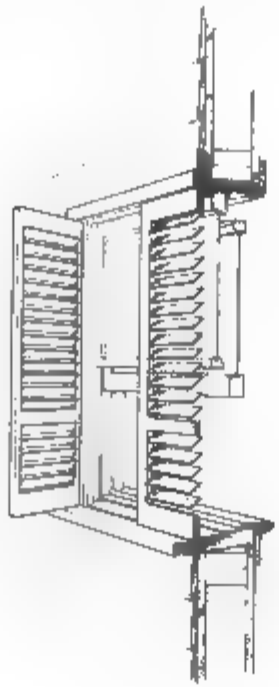
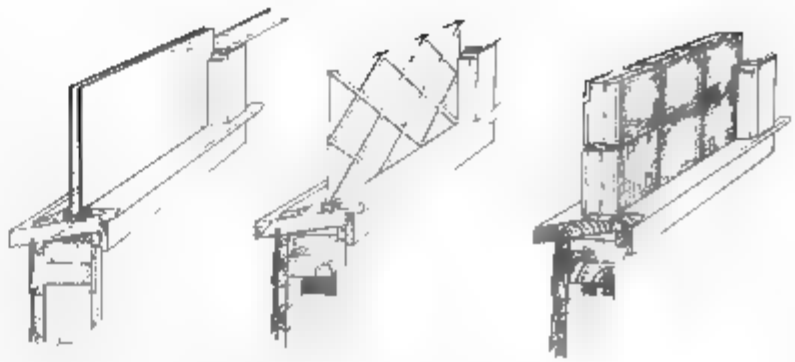


ILLUSTRATION OF SHUTTERS

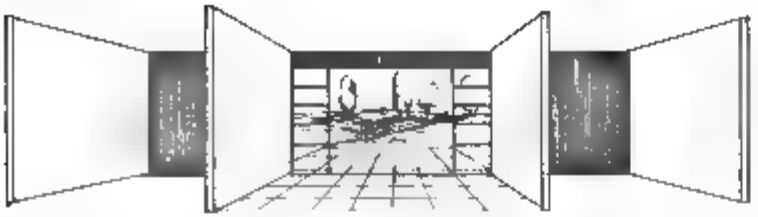


DOUBLE GLAZING LEADLIGHT GLASS BLOCK

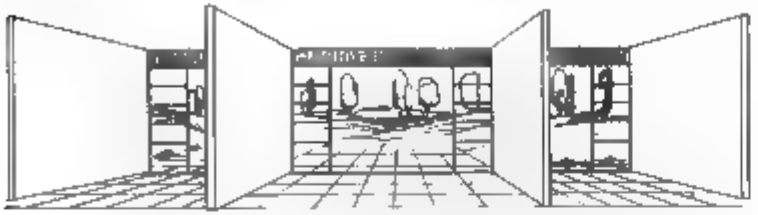
There are var ous methods of glass treatment possible within the window frame Among the most popular are double glazed un ts, glass blocks, and lead ights. Glass blocks allow the passage of light but produce a diffused illumination and prevent clear visib lity through the window

Various types of glass which can re-direct or diffuse ight rays are available These are usually recognizable by a common characteristic all have surface treatments on one or both faces, i.e , ribs, a series of horizontal or vert cal concave or convex surfaces or some other patterns

The recent development of economical, large sized glass plus new methods of construction and heating make larger openings practica and a low larger glass areas within wal s Light becomes unpleasant only when there is excessive contrast between l ght and shade there will be more glare from several sma l w ndows cut into a dark wall than from an entire wall of glass. While t is not suggested that the l ght be even over al the room area, it is desirous to keep glare to a m nimum. Because heat loss through w ndows is compensated by heat gained from the sun's rays, broad double-glazed openings to the south usually result in the reduction of fuel consumption n clear sunny c mates. Small or high windows should be used where privacy is more important than view



CONTROL

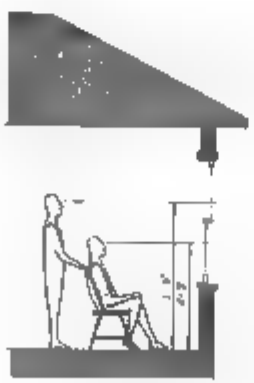


MONOTONY

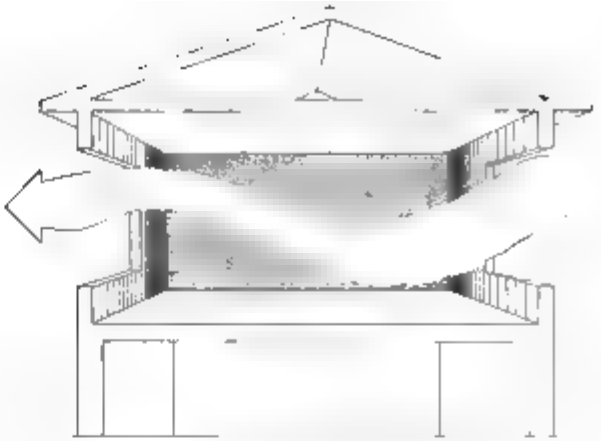
VIEW

In order to provide more pleasant liv ng conditions, the home or at least part of it should be orientated to take advantage of the view Big windows bring the day ight, the garden and the more distant view into the house rel eving the rooms of the r cell like box ness and increasing their apparent spaciousness In too many instances, however, these large picture windows do not face a view If the house is located on a site where no pleasant view exists, then an attempt should be made to orientate the house so that the living and d ning rooms face an area that would at least give the owner an opportunity to create a picture — a flower garden for instance Remember however, exposure to view can be monotonous f the exposure is too ins stent

A horizontal band of windows gives a broader view and more even l ght than a floor to ceil ng narrow open ng, but the latter has the advantage that one can see out whether standing or sitting These are important considerations when plann ng windows for view The sill height should be kept as low as possible to allow full enjoyment of the view when seated Window bars should be placed at such heights that they will not nterfere with view when a person s sitting or standing



WINDOW BAR HEIGHTS

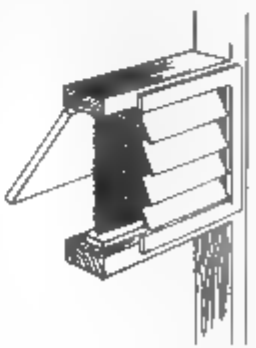


VENTILATION

Cross ventilation s perhaps the best way to provide for summer comfort, unless air condit oning is used. At least two exposures for a room are necessary for cross ventilation. When windows are located in only one wall of a room. the ventilation s far less efficient than it is when there are windows in two adjacent wal s or two oppos te walls. This is because w nds from a most any direction may enter and because the wind that enters s able to escape and thus produce a cross current

There are severa types of movable sash which can be used to provide vent lation Hinged casement w ndows are espec al y good a though they have certain disadvantages because of the difficulty of screening them f they open outward, and because they interfere with curtains and shades if they open nward Double hung w ndows provide the best ventilation if the sashes open halfway from the bottom and halfway from the top, but ful ength screens are then required Hor zontal sliding w ndows and transom sash a so provide good vent l at on but are usual y more costly than double hung windows.

Possibly the best method of pro viding ventilation is by the use of screened openings which are sh elded by louvers, on the top, at the bottom or on either side of fixed glass areas These screened openings could be closed on the nside during the winter with wooden weatherstripped panels. The advantages of these openings are the ouvers can be opened and closed without interfering with curtains, the screens are built in, and the fixed glass areas do not present the numerous problems of weatherstr pping that occur when movable sashes are used



SCREENED VENT

FIREPLACE CONSTRUCTION

It is essential in fire place construction that the flue area be adequate the throat be correctly constructed and have a suitable damper, the chimney be high enough for a good draft, the shape of the fireplace be such as to direct a maximum amount of radiated heat into the room, and that a properly constructed smoke chamber be provided

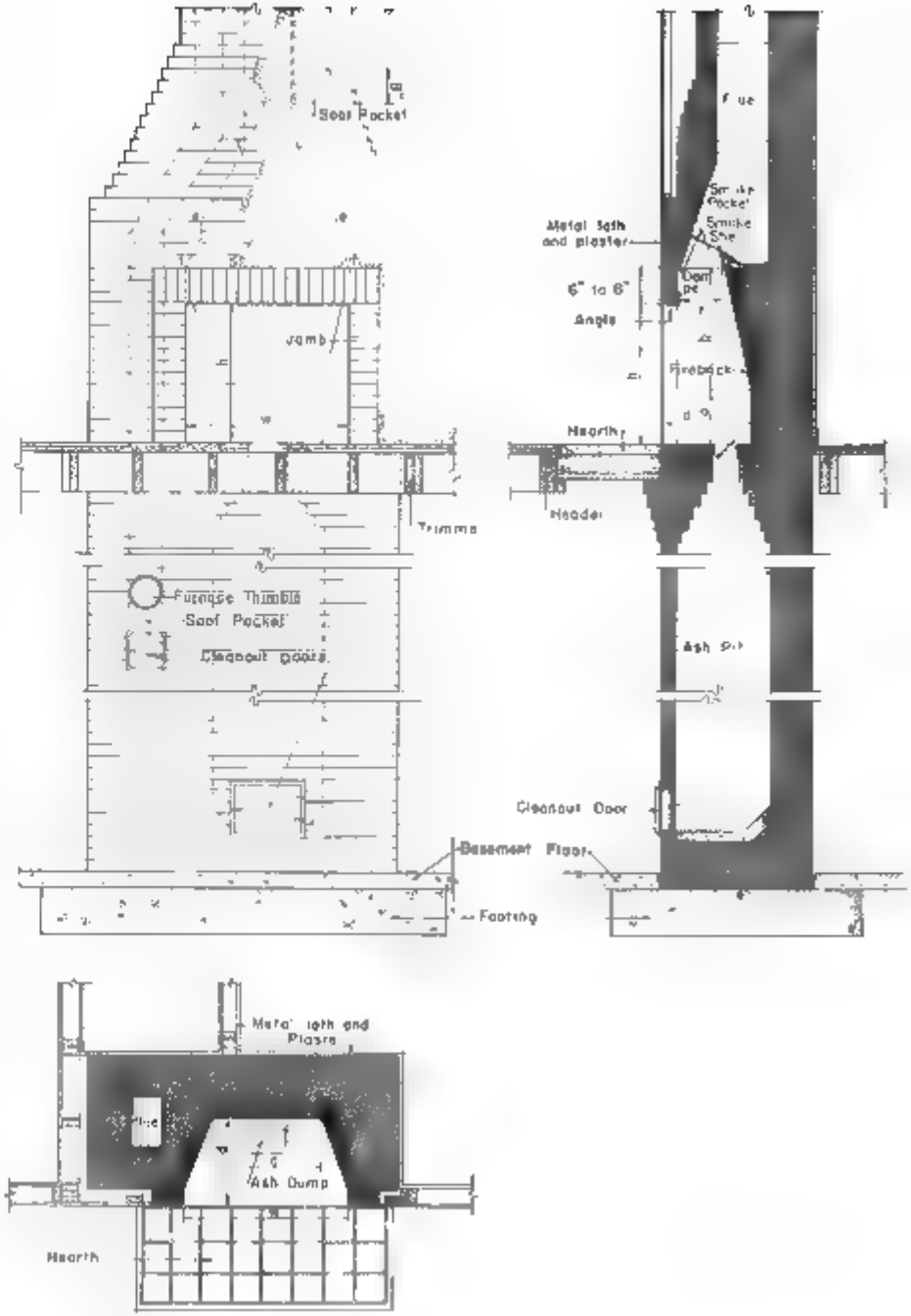
The area of lined flues should be at least one-tenth of the fireplace opening, or a minimum of 8½" by 13" (outside dimensions) The table on page 81 will assist you in selecting the proper size of flue for a given fireplace opening or the proper size of fireplace opening for a given flue

A properly designed damper affords a means of regulating the draft and preventing excessive loss of heat from the room when the fire is out. If a damper is installed, the width of the opening 'f' will depend on the width of the damper frame, the size of which is fixed by the width and depth of the fireplace and the slope of the back wall The full damper opening should never be less than the flue area. The sides of the fireplace should be vertical up to the throat, or damper opening 'f' The throat should be 6" to 8" or more above the bottom of the lintel and should have an area not less than that of the flue, and a length equal to the width of the fireplace opening

The smoke shelf is made by setting the brickwork back at the top of the throat to the line of the flue wall for the full length of the throat Its depth may vary from 6" to 12" or more, depending on the depth 'd" of the fireplace The smoke pocket or chamber is the space extending from the top of the throat up to the bottom of the flue proper 'tt and between the side walls The walls should be drawn inward 30 degrees to the vertical from top of the throat

The top of the hearth should be flush with the floor When there is a basement an ash dump located in the hearth near the back of the fireplace, is convenient The dump consists of a metal frame about 5" by 8", with a pivoted plate through which ashes are dropped into the ash pit below Hearths should project 16" from the front of the fireplace and should be made of brick, stone, terra cotta or reinforced concrete, not less than 4" thick The length of the hearth should be not less than the width of the fireplace opening, plus 16"

The walls of the fireplace should never be less than 8" thick, and if made of stone, not less than 12" thick Lintels of ½ by 3' flat iron bars or 3½' by 3½" by ¼" angles are used to support the masonry over fireplace openings For unusually wide openings larger lintel irons are required Much of the heat produced in any fireplace goes up the chimney There are several types of inexpensive fireplace boxes manufactured from boiler plate steel, which circulate warmed air through a room, thereby increasing the efficiency of a fireplace as a heating unit

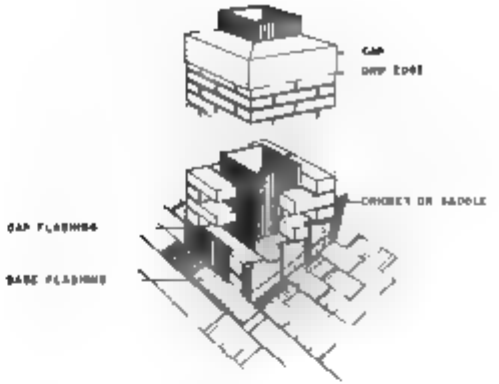


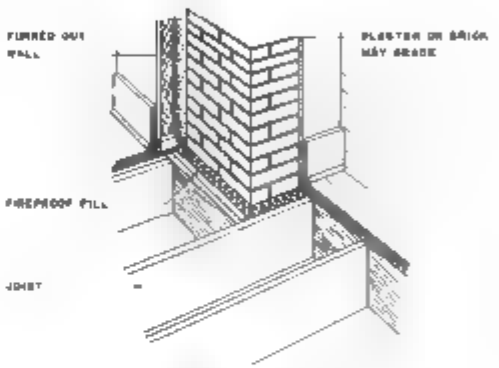
Opening			Minimum back haunching	Vertical back wall	Inclined back wall	Outside dimensions of standard rectangular flue lining	Inside Diameter of standard round flue lining
Width a (inches)	Height h (inches)	Depth d (inches)	c (inches)	e (inches)	b (inches)	(inches)	(inches)
24	24	16×16	14	14	16	8½ by 8½	10
28	24	16×16	14	14	16	8½ by 8½	10
24	28	16×16	14	14	20	8½ by 8½	10
30	28	16×16	16	14	20	8½ by 13	10
36	28	16×16	22	14	20	13 by 13	12
42	28	16×16	28	14	20	13 by 18	15
48	32	16×20	20	14	24	18 by 18	12
42	32	16×20	26	14	24	13 by 13	12
48	32	16×20	32	14	24	13 by 13	15
42	36	16×20	26	14	28	13 by 13	5
48	36	16×20	32	14	28	13 by 18	15
54	36	16×20	38	14	28	13 by 18	15
60	36	16×20	44	14	28	13 by 18	18
42	40	20×24	26	17	28	13 by 13	5
48	40	20×24	32	17	28	13 by 18	15
54	40	20×24	38	17	28	13 by 18	15
60	40	20×24	44	17	28	18 by 18	18
66	40	20×24	46	17	28	18 by 18	18
72	40	20×28	52	17	28	18 by 18	18

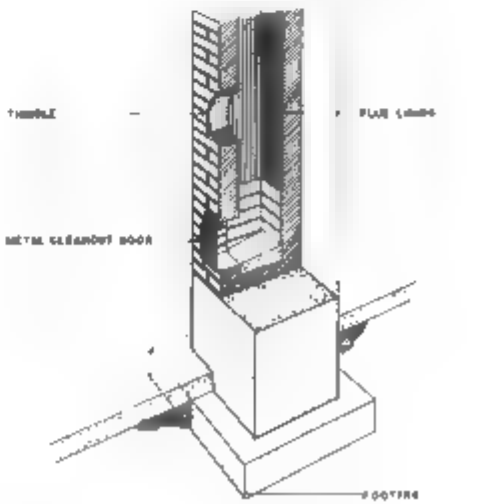
CHIMNEY CONSTRUCTION

Chimneys should be built to a height of at least 2'-0" above the ridge of the roof, for gable or hipped roofs. They should be at least 3'-0" above flat roofs. A cap of stone or concrete on the top of the chimney will shed water, and in this way protect and preserve the masonry below. The flue lining should extend through the cap and project at least 4" above the top of the masonry. A masonry chimney must be independent of the house framing. Where the chimney passes through the floors and roof, there should be 2" of clearance between the wood framing and the masonry for fire protection, expansion due to temperature changes, settlement, or slight movement of the chimney during heavy winds. The chimney should be built upon a concrete or solid masonry foundation properly proportioned to carry the weight imposed without settlement or cracking. The footing for a chimney in a basementless house must be below the frost line.

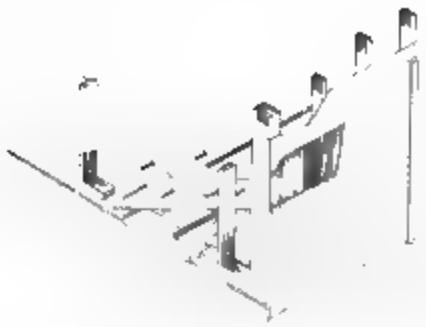
A chimney must be flashed and counter-flashed to make its junction with the roof watertight. When the chimney is located on a sloping roof, but not in the ridge, a cricket is built high enough to shed water around the chimney. Non-corrosive materials such as copper, galvanized metal, zinc or lead are best for the flashing and counter-flashing. The flashing is built into the roofing material and extends up onto the masonry. The counter-flashing is bonded into the mortar joints and lapped down over the flashing.



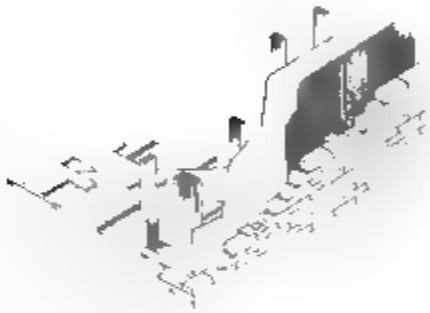




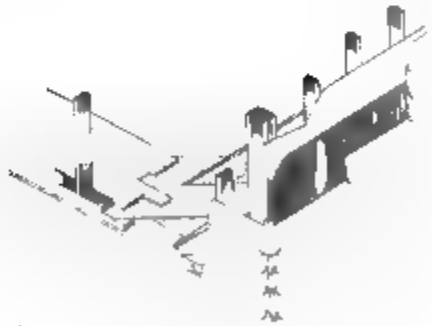
EXTERIOR FINISHES



WOOD



MASONRY



METAL

In selecting materials for house walls, two questions arise

1 How will the materials look?
2 How will the materials withstand the elements?

The materials of which walls are made present a wide variety of form and color. Walls can be made of clapboard, shingles, brick, fieldstone, redwood, glass, plywood, concrete and stucco, with each having a different texture and appearance.

Durability and appearance should be considered when choosing materials. Summer sun and rain, winter snow, sleet, wind and frost are able to penetrate and also wear down the walls. In selecting the materials, relative construction costs must be kept in mind as well as the cost of the materials themselves. Estimate also the costs of maintenance and upkeep through the years: the painting, staining, waterproofing which may be required, depending upon the surface you choose. In general, your choice will be between wood or masonry construction and between the various exterior finishes which may be applied to either one. Clapboards, shingles, boarding, plywood panels, stucco, brick or stone veneer are usually applied as an exterior facing over a wood frame. The frame forms the load bearing structural skeleton of the house. Masonry such as stone, brick, hollow tile, concrete block can form the load bearing wall as well as the finished wall. In general, the wood frame house with a wood finish is less costly to build.

In the familiar forms of clapboards, flush boarding, shingles or boards and battens, wood has always been a most popular material for outside walls. Its variety of form, its general availability, its comparatively low costs, its excellent insulating value and the fact that it can be easily painted or stained make it very popular. Some drawbacks to the use of wood are: it will shrink or expand, and painting or staining it will entail maintenance and upkeep expense. Plywood panels are especially popular. They have exceptional strength, are quickly and economically assembled, no walls have insulation value and will take various finishes. Wallboards made of wood fiber composition also provide durable panels which can be painted and finished in numerous ways.

Brick is the most popular masonry material for wall construction. It can be laid up as a structural load bearing wall or as a facing veneer over wood construction or hollow tile. The irregular sizes, shapes and finishes of bricks, the various methods of treating joints and bonding the bricks together make them an exceptional material for creating varied textures and patterns.

Concrete block can serve as the entire wall structure of a house. It can be both the weight-bearing wall which supports the roof and the exterior wall surface. Its outer side may be faced with stucco or coated with a masonry paint. It is fireproof, vermin proof and economical in cost (see note on page 64). Stone is one of the most attractive wall materials, but it is generally limited to the districts where it is quarried. Stone needs the same careful installation as brick to ensure that masonry and joints are well laid and waterproof. Stone veneer is also used as an exterior facing material over a wood frame.

Stucco is a finish material applied over a frame or masonry wall. Color may be added to the mixture or applied at a later date over the finished wall. It also has fire and weather resistant values.

Manufactured sheet materials are a recently developed and highly practical type of wall finish. Among the more popular of these finishes are the asbestos cement shingles and the asphalt shingles. The asbestos shingles are made of portland cement and asbestos fibers, formed into sheets of various sizes, shapes and colors. Asphalt shingles are a composition of rag or jute fibers, impregnated with tar or asphalt and formed into sheets. Both sheets and shingles produce a weathertight finish of good color and texture. Some condensation problems may occur when asphalt shingles are used as a finish material. The wall covering may be impermeable, preventing the proper breathing of the walls (see page 71). The asbestos cement shingles have the added quality of being fireproof.

Finishing materials of metal are another new type of wall finish. Aluminum siding, fabricated to look like clapboards, is weather and fireproof and is long lasting.

Steel is now available in corrugated sheets and other patterns as an exterior wall finish.

INTERIOR FINISHES

Interior surfac ng materials must be chosen carefu ly both for the r effectiveness and for their advantageous use There are fireproof materials, acoust ca materials, nsu at ng materials, a l ava lable in var ed forms

The common material for walls and cei ings s plaster This fam liar interior fin sh creates smooth and ,oint ess walls and ce l ngs It may be covered with decorative materia s, painted or papered. One disadvantage of plaster is that cracks may develop if the plaster dr es mpertectly or if the house settles unevenly Also as plaster ng is high y skil ed work. persons who are inexperienced in the craft can seldom do it wel

An ent rely new type of wall and ce ling finish, called dry-wall finish has been deve oped In th s type of construct on. the wal s are finished with specia ly manufactured sheet materials such as fiber board, gypsum board, or plywood panels. Walls wh ch have unbroken surfaces. sim ar to plaster walls. may be produced with these materials or the pane s may be instal ed w th the jo nts visible, creating nterest ng wall patterns.

"Standard Quality" p ywood is used for interior wall finishing It is made with a water resistant glue rather than with the waterproof glue used in making 'exterior quality' plywood. These panels are available with veneers of many var eties of woods. Walls can also be finished with specially selected and prepared lumber The chief requ rements of this lumber are sufficient hardness to resist impact and abrasion, a pleasing color, and an interesting grain Oak maple ash, knotty pine and several other woods possess these qualities As a genera ru e, th s type of wall finish is more expensive and more difficult to nstall than are the wallboards.

L noleum wall covering is becoming a very popular wal fin sh for kitchens and bathrooms. t must be installed over a so id, smooth back ng because irregularities will show through t. Various accessories are available for finishing corners, bases and cornices on linoleum wals

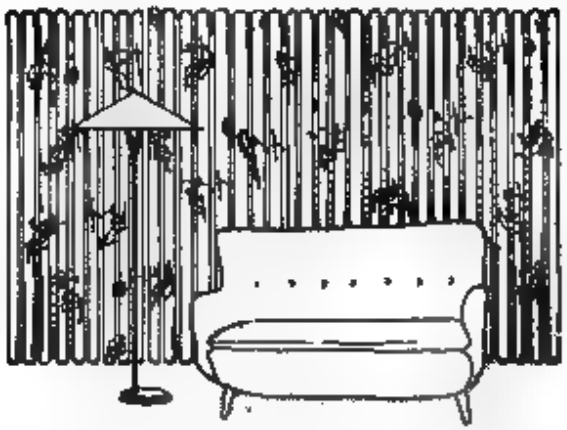
Colored opaque plate g ass is used to some extent, for surfac ng bathroom and kitchen wails It is an excellent materia but it is d ffic t to install Glazed ceramic tile is another very popu ar finish for bathrooms and kitchens, and many substitutes have been deve oped for it These include metal, such as steel or a uminum with various types of fin shes, including fused-on porcela n

Interior walls, part cularly fireplace wal s, are often bui t of brick, stone or other masonry materials, creating a permanent fireproof wall

New developments n plast cs have introduced severa practical and durable types of wall finish. They are available n lightweight sheets which require no pa nt ng resist stains, cracking, cigarette burns, etc A new and economica plastic hardboard is also avai able for interior wa l fin shes. The hardboard is attached to the wall w th mastic and may be obtained with a wood veneer facing

- PLYWOOD PANELS
- WOOD BOARDING
- WOOD PANELLING
- GYPSUM BOARD
- FIBRE BOARD
- ACOUSTIC BOARD
- PLASTER
- BRICK
- CONCRETE BLOCK
- PLASTIC FINISH
- GLASS
- CERAMIC TILE
- LINOLEUM
- ALUMINUM
- STEEL

FURNISHINGS



When you walk into a handsome room what you notice first is the surface beauty of its furnishings. But the real beauty is less obvious. It exists in the appropriateness and the adaptability of the furnishings and the air of good living created by the furnishings. All these features should be apparent in each piece of furniture you buy. Good furniture, whatever its period, has certain qualities which can be analyzed. The first thing to consider in selecting furniture is how a good design can be distinguished from a poor one. There are definite standards which can be applied and an attempt will be made here to analyze the qualities of well designed furniture. These qualities can be listed under six headings.

1. Comfort
2. Economy
3. Durability
4. Convenience
5. Ease of Cleaning
6. Beauty

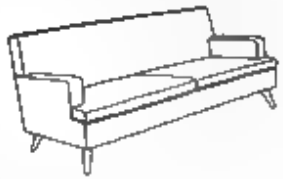
COMFORT

Pieces of furniture such as chairs, couches and beds should be thought of as something added to a home to give more comfort to the family. Comfort implies the absence of physical strain of any kind. The design of this furniture relates directly to human anatomy. Function or use is the first concern of the contemporary designer. For instance, there is a proper angle and depth of the chair seat, back and arms for each posture. Thus, to a limited extent, function determines the profile of the chair, irrespective of its style and period. This indicates the necessity for gradual alterations in chair profile as function varies from working, to dining, reading and relaxing.

ECONOMY

Comfort relates to the budget, just as it relates to human anatomy. Like any other merchandise, furniture is made to sell. The shopper is not always aware of the values of furniture. However, in a reputable store, the price of a piece of furniture is usually closely related to the amount of work necessary in its manufacture and the quality of the material used. If your budget does not permit the purchase of the best, you can, if you shop carefully get a very good quality for what you spend.

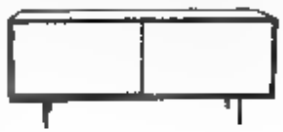
FOR COMFORT THIS ● ● ●



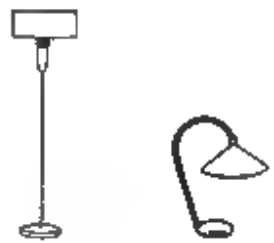
FOR ECONOMY THIS ● ● ●

FOR DURABILITY THIS ■ ● ●

FOR CONVENIENCE THIS ● ●



FOR CLEANING THIS ● ● ●



FOR BEAUTY THIS ● ● ● ●

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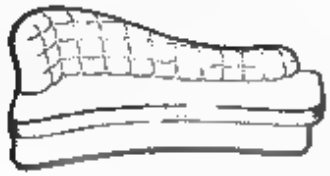

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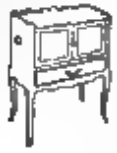

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DURABILITY

The actual cost of a piece of furniture is its initial cost, plus the cost of repairs during its lifetime. On this basis, an inexpensive badly built piece will be more expensive in the end than one which costs more but which is well built of sound hard-wearing materials.

Furniture must be able to withstand the wear and tear of daily use. The covering materials which may be used have very different wearing qualities. Most hardwoods, cut and seasoned properly, will give good service but soft woods may be used if they are suitable.

The use of metal in furniture design is comparatively new. Because of its great durability it is very practical, although at present metal furniture is expensive.

Fabrics should be selected for their long wearing qualities and their ease of cleaning. Until recently, most furnishing fabrics were made of different mixtures of wool, cotton and other natural fibers, but the use of synthetic fibers, such as nylon, is increasing rapidly.

CONVENIENCE

The convenience of a piece of furniture is possibly its most important quality: how efficiently it does its job of being a useful chair, table or wardrobe; how much space it takes in a room, whether it fits easily in a room with other furniture, whether it can be moved about the room easily, whether small tables, etc., can be easily stacked out of the way to make room for dancing and games.

Lighting fixtures should also be chosen for their flexibility and convenience. A lamp that can be adjusted to several positions for writing, reading, etc., is much more useful than a non-flexible type of lamp.

EASE OF CLEANING

Do not buy furniture which cannot be kept clean. Dirty furniture makes a whole room appear untidy. When buying furniture, keep in mind the fact that simple plane surfaces are easier to keep dust-free than complicated moulded ones.

Such details as removable pads, shapes that are easy to cover, and waterproof fabrics are of prime importance. Fabric covers should be easy to detach for cleaning and their colors and patterns should not show the dirt. Fabrics coated to resist dirt and wear should be used for upholstering pieces which will be subjected to hard, everyday use.

BEAUTY

Furniture, of course, is functional; it must serve and it must last. Appearance is also an important consideration. Beauty in furniture should not be thought of as something added as a surface decoration but the result of a successful combination of form, color and texture.

There are great differences of opinion as to what is beautiful and what is not. Beauty for you is what you like. Do not buy furniture you will tire of quickly. Over-fancy furniture may appeal to you when you first see it but the chances are it will lose its appeal sooner than simpler furniture.

Consider beauty as a necessity, not a luxury. Choose a style of furniture which suits the people and activities for which the room is planned.

An under-furnished room is better than an over-furnished room. That "cleared out" look sets off the beauty and good proportions of the furniture in the room.

LIGHTING

Good i um nation s not only a matter of an adequate supply of light but depends equally on the qua ity of the light provided What is needed to ensure good ight ng is proper y designed direct lighting or spec fic areas and activities, a ong with a sufficient amount of indirect overa l ighting

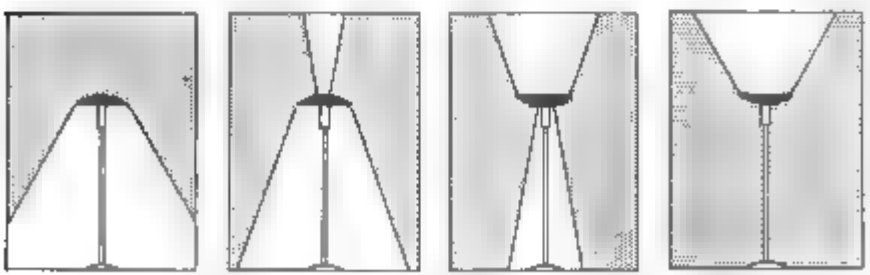
t is we l to understand some of the features of various types of light ng before arranging e ectrical fixtures

Incandescent lighting denotes Illumination by means of a vacuum tube con ta n ng a fi ament wh ch is brought to a br ll ant g ow by passing a current of e ectricity through it

Fluorescent ight ng denotes il umination by means of vapor n a vac uum tube, the vapor be ng brought to ncandescence by an electric current F uorescent light ng units are we l suited to use in a res dence but the present types have numerous d sadvan ages They do not il uminate instantly and certa n colored units produce effects that are not always pleasing They do however, use less power cause less heat and produce a more d ffused ght than do the incandescent bulbs

A direct l ghting system is one that utilizes the rays of light coming directly from the ight ng un t to the surface wh ch s to be luminated Th s system ncreases the prob em of glare An ndirect lighting system has the ight sources hidden from view so that he rays are reflected from ce ings and walls to produce a un form diffused l ght and is exce lent for general il umination The efficiency of the ndirect system depends very much upon the color, smoothness and cleanliness of walls and ce ings

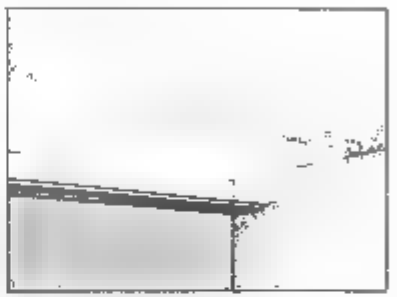
Some fixtures supply a combinat on of d rect and ndirect l ght ng For cei ing fixtures this can be accomplished by us ng transfucent globes or bow s that et part of the l ght come through directly and reflect the remainder to the cei ng D rect and ndirect light ng are somet mes combined in floor amps (See d agram)



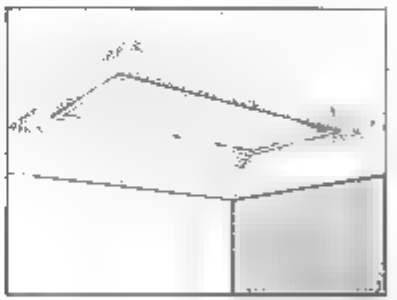
DIRECT SEMI-DIRECT SEMI-INDIRECT INDIRECT

Overal l gh ng can be ach eved by us ng we l d stributed softly d ffused light To avo d g are, all bulbs should be shielded from d rect vision The cei ings shou d be i lum nated to an even g ow Th s can be done by using cove l ghting panel ghting or meta fixtures of bu let like shape which are attached to the wal and are ti ted to shine aga nst the ceiling (See diagrams)

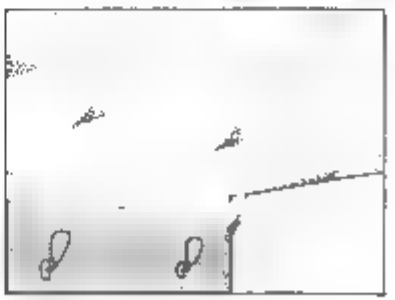
COVE LIGHTING



PANEL LIGHTING



"BULLET" LIGHTING



Household activities determine when direct lighting is needed. Everything you do, writing, reading, dressing, cooking, playing cards, etc., must have sufficient direct illumination. The lamps in the living room for reading, writing and sewing should be tall, preferably with reflectors which help to spread the light. The dining area requires direct lighting on the table surface. A fixture which hangs from the ceiling, or a built-in ceiling unit which casts a beam of light down on a teble will provide good direct lighting.

A kitchen can be made bright and cheerful by the use of direct lighting for the sink, range and counter tops, plus indirect ceiling lighting for overall illumination. Fluorescent tubes over counter tops are useful if they are properly shielded.

The outlets for floor lamps and electrical appliances should be of the type that will receive the standard two-pronged plug on an extension cord. The location and provision of sufficient numbers of outlets is important. When planning where they should be located, consider the possibility of having them in the baseboards or approximately 18" above the floor and place them near door frames and close to the edges of windows.

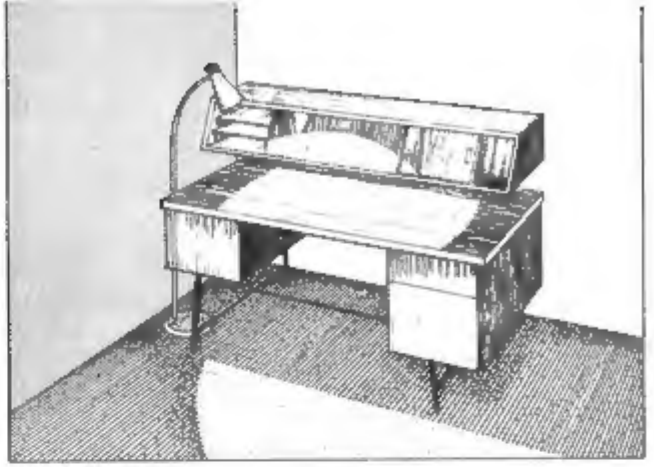
Regardless of your present plans for arranging the furniture, provide one or two outlets somewhere along each continuous wall space of appreciable size and put in more than the minimum number required to provide for any future rearrangement of the room.

It might be a good idea for you and your family to list all the electrical equipment which you will use in your home before the wiring is installed. This should include, as far as possible, the additional equipment you plan to acquire during the next few years.

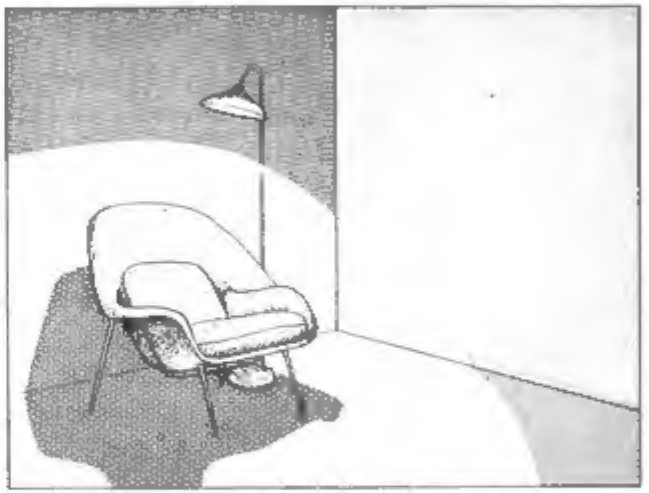
Unless you plan now for future use of electricity you may find it necessary to rewire part or all of your house with larger sized wires and different circuit arrangements at considerable expense and trouble. Failure to rewire may cause electrical equipment to burn out, use more electricity and operate less satisfactorily than it should. It may cause electrical trouble and may even be extremely hazardous to your family and property.

If it is impossible to install complete wiring at first, that part which is put in should be installed in such a way that it can be added to, rather than torn out and replaced. It is cheaper and safer to plan early than to rewire later.

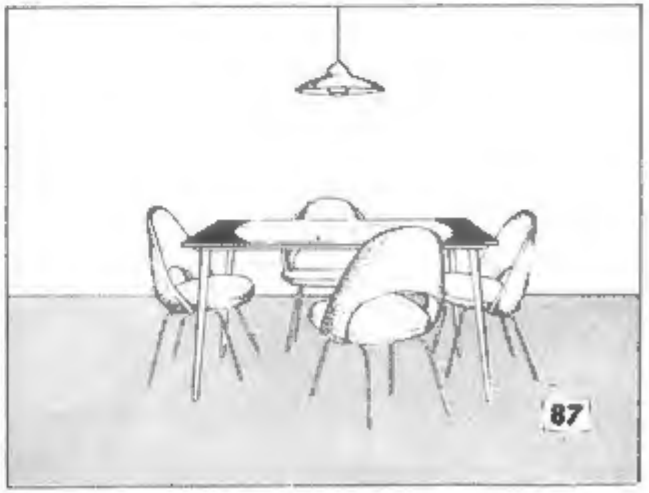
For safety, economy, and convenient service, electric wiring must be carefully and correctly designed and installed. Bulletins on farm home wiring in which recommendations are made for the kind and amount of wiring needed to give efficient service are available from some of the Provincial Departments of Agriculture, from the manufacturers and electrical service supply agencies. Wiring must conform to provincial and local regulations and should be done preferably by a reputable electrical contractor familiar with farm service requirements.



WRITING



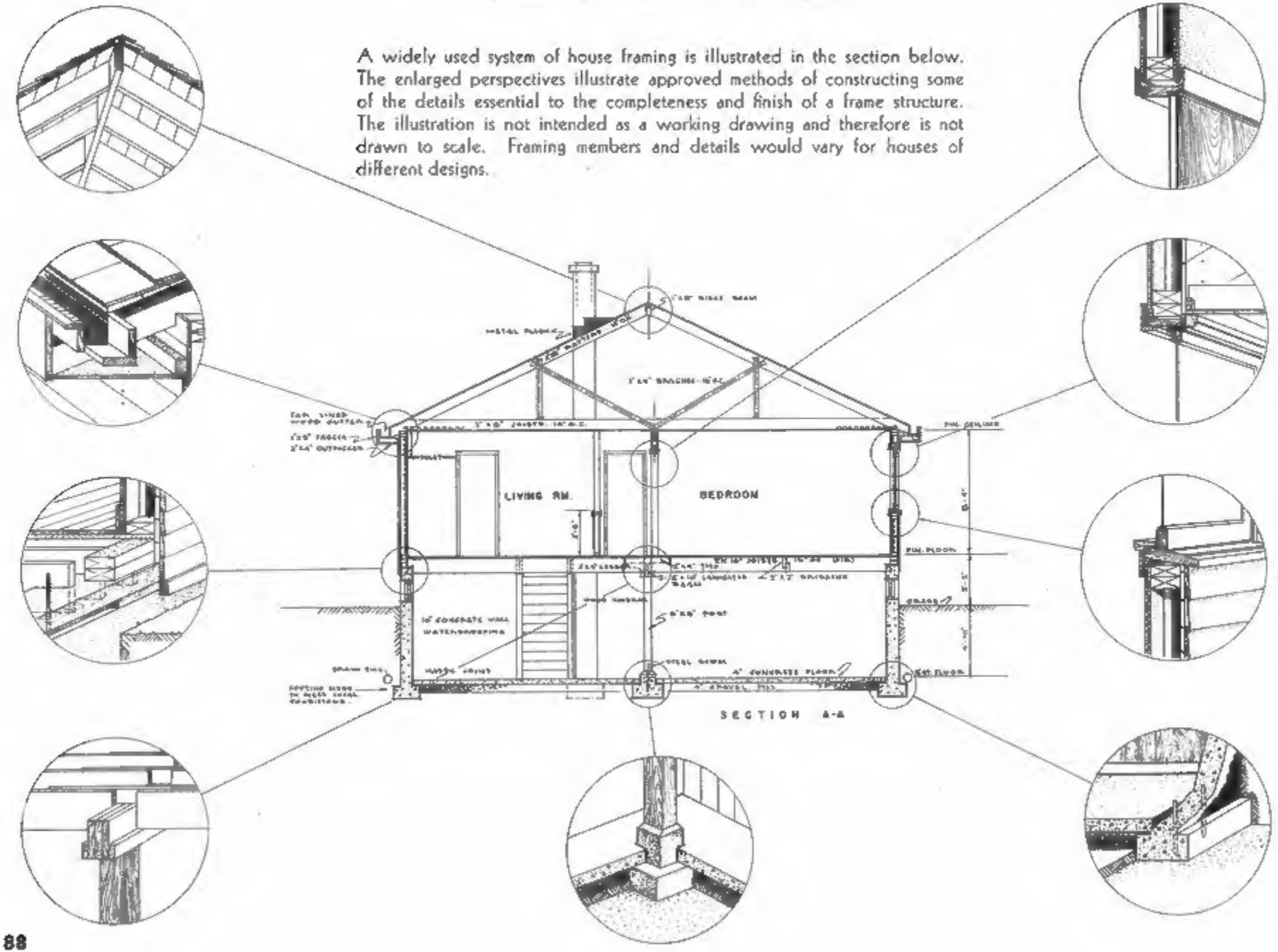
READING



DINING

SPECIAL DETAILS

A widely used system of house framing is illustrated in the section below. The enlarged perspectives illustrate approved methods of constructing some of the details essential to the completeness and finish of a frame structure. The illustration is not intended as a working drawing and therefore is not drawn to scale. Framing members and details would vary for houses of different designs.



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